A publication of the International Society for Horticultural Science

Chronica Horticulturae

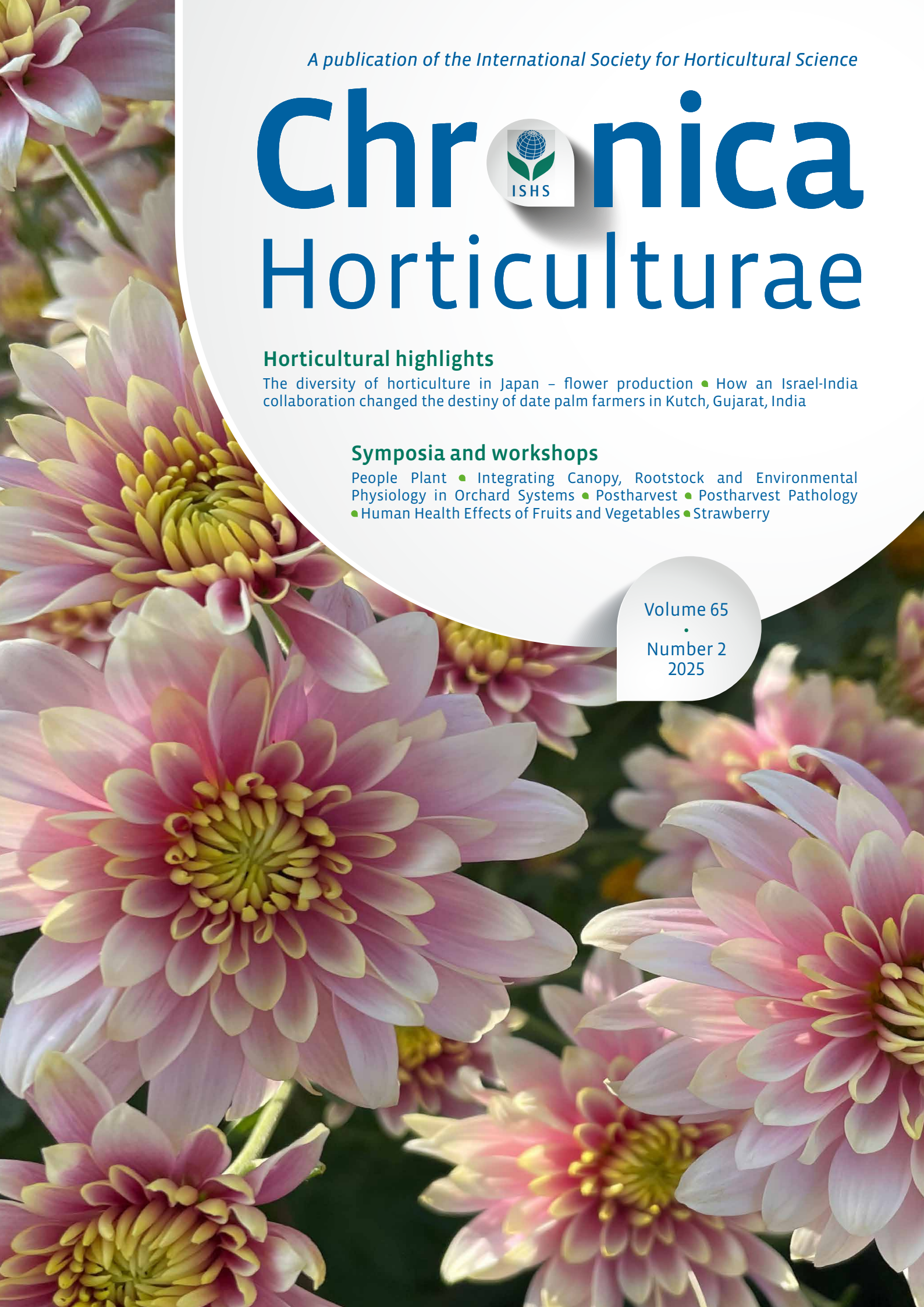
Horticultural highlights

The diversity of horticulture in Japan – flower production • How an Israel-India collaboration changed the destiny of date palm farmers in Kutch, Gujarat, India

Symposia and workshops

People Plant • Integrating Canopy, Rootstock and Environmental Physiology in Orchard Systems • Postharvest • Postharvest Pathology • Human Health Effects of Fruits and Vegetables • Strawberry

Volume 65
•
Number 2
2025



Chronica Horticulturae

A publication of the International Society for Horticultural Science, a society of individuals, organizations, and government agencies devoted to horticultural research, education, industry, and human well-being.

Chronica Horticulturae© Volume 65 – Number 2; June 2025;
ISSN: 0578-039X (print), 2506-9772 (electronic).
Published quarterly by the International Society for Horticultural Science, Leuven, Belgium. Lay-out and printing by Drukkerij Graphius, Gent, Belgium. ISHS© 2025. All rights reserved. No part of this magazine may be reproduced and/or published in any form, photocopy, microfilm or any other means without written permission from the publisher. All previous issues are also available online at **www.ishs.org**. Contact the ISHS Secretariat for details on full colour advertisements (1/1, 1/2, 1/4 page) and/or mailing list options.

Editorial office and contact address:
ISHS Secretariat, PO Box 500, B-3001 Leuven 1, Belgium. Phone: (+32)16229427, E-mail: **info@ishs.org**, Web: **www.ishs.org** or **www.actahort.org**.

Editorial staff
Peter J. Batt, Editor, **peterjbatt@gmail.com**
Kelly Van Dijck, Associate Editor, **kelly.vandijck@ishs.org**
Peter Vanderborght, Executive Director

Membership and orders of *Chronica Horticulturae*
Chronica Horticulturae is provided to members free of charge: For details on ISHS membership, categories, discounts and membership advantages, or to apply for ISHS membership go to **www.ishs.org/members**

Payments
All major Credit Cards accepted. Always quote your name and invoice or membership number. Money transfers: ISHS main bank account number is 230-0019444-64. Bank details: BNP Paribas Fortis Bank, Branch "Heverlee Arenberg", Naamsesteenweg 173/175, B-3001 Leuven 1, Belgium. BIC (SWIFT code): GEBABEBB08A, IBAN: BE29230001944464. Please arrange for all bank costs to be taken from your account assuring that ISHS receives the net amount. Prices listed are in euro (EUR) but ISHS accepts payments in USD as well.

Acta Horticulturae
Acta Horticulturae is the series of proceedings of ISHS Scientific Meetings, Symposia or Congresses (ISSN: 0567-7572). ISHS Members are entitled to a substantial discount on the price of *Acta Horticulturae*. A complete and accurate record of the entire *Acta Horticulturae* collection, including all abstracts and full text articles, is available online at **www.actahort.org**. ISHS Individual Membership includes credits to download 20 full text *Acta Horticulturae* articles. All *Acta Horticulturae* titles - including those no longer available in print format - are available in the electronic e-*Acta Horticulturae* online format.

eJHS
eJHS (*European Journal of Horticultural Science*) is the official journal of the International Society for Horticultural Science. eJHS is an open access journal publishing significant plant science discoveries and new or modified methodologies and technologies with a broad international and cross-disciplinary interest in the scope of global horticulture. The journal scope covers both applied and fundamental aspects of the entire food value chain, including breeding, production, processing, trading and retailing of horticultural crops and commodities grown in temperate, Mediterranean, tropical and subtropical climates. Additional information can be found at **www.ishs.org/ejhs**

Scripta Horticulturae
Scripta Horticulturae is a series from ISHS devoted to specific horticultural issues such as position papers, crop or technology monographs and special workshops or conferences.

PubHort – crossroads of horticultural publications
Pubhort is a service of ISHS as part of its mission to promote and to encourage research in all branches of horticulture, and to efficiently transfer knowledge on a global scale. Additional information can be found at **www.pubhort.org**

› Contents

Cover photograph: A promising line of chrysanthemum (*Chrysanthemum morifolium* Ramat.) with pink petals, independently selected from a cross-breeding population cultivated during student training at the Institute for Sustainable Agro-ecosystem Services, Graduate School of Agricultural and Life Sciences, The University of Tokyo (Photo courtesy of Assoc. Prof. Dr. Yohei Higuchi, The University of Tokyo). See article p.7.

› From the cockpit

Peter J. Batt, Editor, *Chronica Horticulturae*

› Peter J. Batt

We live, it seems, in an increasingly turbulent and uncertain environment. With rising conflicts and weakening diplomacy, the global order is shifting. The threat of a global trade war has seen stock markets collapse and investor confidence decline. Climate change and global conflicts continue to adversely impact food production and to threaten international supply chains. Economic growth is anticipated to slow, with the imposition of higher tariffs on both inputs and outputs leading to higher inflation that will inevitably cause food prices to rise even further, putting more pressure on household expenditure.

Economists refer to these long-term structural shifts as megatrends. These megatrends are likely to have a substantial and transformative impact on individuals, organisations and societies. While for some, they portray a rather bleak future, for others, they present abundant opportunities. For horticulture, climate change and the increasing pressure on natural resources will drive cutting-edge innovations that aim to do more with less. Preventative health initiatives will aim to encourage households to eat more fresh fruit and vegetables, reducing the burden of non-communicable disease on the public health system. The rapid adoption of Industry 4.0 technologies – AI, machine learning, sensors and the Internet of Things (IoT) – has the potential to automate farming systems, accelerate genetic improvements, and improve on-farm management practices. It's in the application of these new and emerging technologies that we congratulate our Young Minds awardees. Mark Porter utilises genome-wide association (GWAS) and sensory evaluations to develop molecular markers for key aroma compounds to facilitate the genetic improvement of flavour in strawberries. Takumi Fujiki uses matrix-assisted laser desorption/ionization-time of flight mass spectrometry imaging (MALDI-TOF MSI) to explore how abscisic acid (ABA) is distributed in the fruit of strawberry, while Tristan Dorfling seeks to explore the interaction of genotype by environment on apples in the Western Cape region of South Africa. Martin Zapien explores how pruning practices can be used to concentrate fruit ripening and increase the harvest efficiency of blueberries, while Varshini Rajesh Ambekar considers the use of geographic indicators (GI) to protect the economic, social and cultural heritage of Ratnagiri mangoes and Basmati rice in India. To further support our talented Young Minds, I am delighted to see the 3-Minute Horticultural Thesis included in the program for the XXXII International Horticultural Congress (IHC2026) in Kyoto, Japan. In promoting IHC2026, in this edition, our colleagues in Japan introduce us to the cut flower and potted plant industry. While Japan has a deep-rooted tradition of flower appreciation, reflected in practices such as ikebana (flower arrangement) and hanami (the viewing of the cherry blossom), the household consumption of cut flowers and potted plants is increasing. However, flower production in Japan is steadily declining with the value of imports becoming more significant year by year. Not unexpectedly, chrysanthemums are the most important flower crop in Japan, accounting for around 40% of the production. While roses, carnations and lilies comprise the top four, our attention is directed towards some of the more unique crops such as lisianthus, statice, gentians, sunflower, dahlia and ranunculus. Among the potted plants, cyclamen are popular for the Christmas season, together with potted poinsettia. In cultivating cyclamen in Japan, the 'hagumi' technique is widely practiced where leaves in the central part of the bulb are physically moved and aligned around the outside of the pot to create a more luxurious plant. In the production of potted *Phalaenopsis* orchids, the 'shitate' technique is used so that all the flowers align in just one direction. New developments in the production of fragrant carnations and hydrangeas are also discussed.

We also learn about the development of the date industry in Kutch, western India. While most regions in India are not suitable for cultivating date palms, due to climatic limitations, traders from the Arab countries are believed to have brought dates to the Gujarat region. After consuming the fruit, the seeds were discarded, but many germinated to establish the first date palm trees in the region. In such an impoverished part of India, date palms not only provide a valuable source of nutrition but also improve farmers' socio-economic status. While propagation from seed has its limitations, with such a wide diversity of fruit colours, taste profiles and ripening times, the local gene pool has been exploited to select three exceptional genotypes that have been utilised in the development of a vibrant local industry. Today, nearly 19,000 ha are under cultivation, producing almost 85% of India's total date production.

Horticultural Science News

› ISHS Young Minds Award winner summaries

Below is a selection of research summaries from winners of ISHS Young Minds Awards for best oral and poster presentations at ISHS symposia. To view other exciting research summaries by other winners, please visit www.ishs.org/young-minds-award

Increasing canopy light interception to improve fruit ripening duration and uniformity of southern highbush blueberry

› Martin Zapien

Martin Zapien is a PhD student in the Small Fruit Horticulture Lab at the University of Florida, USA. Martin's research focuses on agronomic strategies to increase the efficiency of southern highbush blueberry (SHB) production in north-central Florida. Specifically, Martin's research explores how pruning practices can be used to concentrate fruit ripening and increase harvest efficiency. Blueberries exhibit asynchronous ripening, which results in extended harvesting periods. Accelerating and synchronizing fruit ripening depends on photosynthetically active radiation (PAR) availability, which is influenced by plant architecture and canopy attributes. In the awarded oral presentation, the objective was to document PAR interception and distribution within the canopy of mature, deciduous SHB plants, as they emerge from dormancy and enter the fruiting season. Results demonstrated that PAR distribution varied significantly within the plant canopy. Approximately, 50% more PAR light was available to leaves located 1.2 m from the base of the plant than at 0.6 m. Monthly variability in PAR interception was also observed between cultivars, reflecting differences in plant architecture. These findings suggest that photosynthesis in the lower part of the SHB canopy might be limited by PAR scarcity. Light interception differences could also impact other traits of interest like fruit ripening, quality and yield.
Martin Zapien won the ISHS Young Minds Award for the best oral presentation at the XIII International Vaccinium Symposium in Canada in August 2024.

› Contact

Martin Zapien, University of Florida, 2550 Hull Rd., Gainesville, FL 32611, USA, e-mail: jzapienmacias@ufl.edu

Ratnagiri mangoes and Basmati rice geographical indication – a case study of biodiversity conservation

› Varshini Rajesh Ambekar

As an aspiring lawyer with a strong interest in research, my fascination with the intersection of intellectual property (IP) law and agricultural sciences has been the catalyst for this study. IP law is a dynamic field that provides essential legal mechanisms to protect indigenous cultivation practices, safeguard plant varieties, and preserve traditional knowledge. A key tool in this regard is the geographical indication (GI) tag, which plays a vital role in recognizing and protecting region-specific agricultural products.
Biodiversity conservation is a global priority, requiring robust legal frameworks to ensure its protection. IP law contributes significantly to this effort by balancing innovation with the preservation of biodiversity and traditional knowledge. The interplay between biodiversity and legal frameworks forms the foundation of this research.
India is renowned for its rich agricultural heritage, and its diverse and high-quality produce. Among its most iconic agricultural products are mangoes and Basmati rice, both of which hold immense economic, social and cultural significance. Indian mangoes, prized for their distinctive flavor and aromatic richness, are globally recognized. Similarly, Basmati rice, with its unique fragrance and long grains, remains a hallmark of India's agricultural excellence, captivating global markets for centuries.
The economic and cultural importance of these products, coupled with the challenges of misappropriation and imitation, underscores the need for robust legal protection. This study explores the role of GI tags in safeguarding these agricultural treasures, ensuring fair recognition and economic benefits for local producers, while preserving India's agricultural legacy and biodiversity for future generations.
Varshini Rajesh Ambekar won the ISHS Young Minds Award for the best oral presentation at the X International Scientific and Practical Conference on Biotechnology as an Instrument for Plant Biodiversity Conservation (physiological, biochemical, embryological, genetic and legal aspects) in India in November 2024.

› Contact

Varshini Rajesh Ambekar, Ramaiah College of Law, MS Ramaiah Nagar, Gnanagangothri Campus, MSRIT Post, Mathikere, Bengaluru, Karnataka 560054, India, e-mail: varshinira23@gmail.com

Genotype-by-environment interaction and stability analysis of apple genotypes under varying climatic conditions in the Western Cape, South Africa

› Tristan Dorfling

South Africa's apple industry is facing increasing pressure from climate variability and declining winter chill. This study investigated how young apple genotypes perform under these changing conditions, focusing on phenology, tree architecture and the role of rest-breaking agents (RBAs) across different environments in the Western Cape province of South Africa. The study involved a multi-environment trial (MET) across three climatically distinct regions – ranging from low to high winter chilling. Ten apple genotypes, differing in chilling requirements, were evaluated to assess adaptability. All trees were grown under uniform orchard conditions: the same rootstock (M.7 EMLA), central leader training, and standardized planting density. Statistical methods including analysis of variance (ANOVA), the Additive Main effect and Multiplicative Interaction (AMMI) model, genotype + genotype-by-environment (GGE) biplot and discriminant analysis (DA) were used to analyze genotype-by-environment interactions (GEI) and to identify traits critical for environmental adaptation. The results revealed distinct genotypic responses to accumulated heat and chill, which influenced bud break and vegetative traits. RBA application proved especially important in low chill regions, enhancing bud break in higher chill-requiring genotypes. However, RBA effects were inconsistent in high-chill areas and had limited influence on vegetative growth. Most notably, 'Louterwater Granny Smith' emerged as a robust genotype, showing low chill requirements, early and reliable bud break, and a favorable response to RBA application – although the genotype is not without management challenges. The findings reinforce the importance of selecting genotypes not only for their performance but also for how well their weaknesses can be mitigated through horticultural practices such as rootstock choice, pruning, growth regulators, or planting density. This work is part of a longer term 8-year project and was carried out in collaboration with Provar, Stellenbosch University and the Agricultural Research Council (ARC), utilizing the Pro-Hort EcoPhysiology Platform (PHEPP), with funding provided by HORTGRO.

Tristan Dorfling won the ISHS Young Minds Award for the best poster presentation at the XIII International Symposium on Integrating Canopy, Rootstock and Environmental Physiology in Orchard Systems in New Zealand in January 2025.

› Contact

Tristan Dorfling, Provar, Unit 5, Pearl Building, Zandwyk Park, R101, 7646 Western Cape Paarl, South Africa, e-mail: tristan@provar.co.za

Gene discovery and genomic prediction for improved strawberry flavor

› Mark Porter

Research into the chemical and sensory nature of strawberry flavor has been conducted for over 50 years. However, until recently, there has been little integration of this flavor research into the breeding pipeline for commercial strawberry cultivars. Strawberry flavor is a complex, subjective trait that results from a combination of sugars, acids and volatile aroma compounds (VOCs). Sensory panel studies, combined with chemical analysis, have indicated that there is a small set of key aroma compounds responsible for the flavor and sweetness of strawberries. To facilitate the genetic improvement of strawberry flavor, two approaches are available: 1) genome-wide association (GWAS) and development of molecular markers for key aroma compounds, and 2) genomic prediction for breeder-based sensory evaluations. For this study, berries from 400 breeding lines in the University of Florida Strawberry Breeding Program were used for chemical analysis by GC-MS, which enabled quantification of key compounds including furaneol, mesifurane, γ-dodecalactone and γ-decalactone. PCR-based high resolution melting markers were based on GWAS results to screen for the increased production of furaneol and mesifurane, as well as γ-dodecalactone and γ-decalactone in strawberry seedlings. Using *Agrobacterium*-mediated transient RNAi and overexpression assays in detached strawberry fruits, an enoyl-CoA hydratase gene responsible for lactone biosynthesis was validated. Sensory evaluations were conducted by members of the breeding team on a weekly basis over two years to evaluate strawberries for flavor, sweetness and sourness using a 1-5 scale. A total of 5182 observations were recorded for 1066 genotypes across 17 weeks by multiple tasters following a sparse testing design. The effects of genotype, taster, week and error were modeled as random effects to correct for the highly unbalanced design. The genetic effect for each sensory attribute was used as the response variable for genomic prediction, which demonstrated moderate average predictive abilities of 0.35-0.36 in 80:20 cross validation. A useful genomic prediction model, built from breeder-based sensory evaluations, represents an important paradigm shift in genetic improvement for strawberry flavor, as its implementation allows for selection of seedlings and early-stage breeding material where consumer sensory studies are not feasible.

Mark Porter won the ISHS Young Minds Award for the best oral presentation at the X International Strawberry Symposium in China in March 2025.

› Contact

Mark Porter, University of Florida, Gulf Coast Research & Education, 14625 County Road 672, Wimauma, FL 33598, USA, e-mail: markporter@ufl.edu

Distribution of abscisic acid in strawberry fruit visualized utilizing MALDI-TOF MSI

› Takumi Fujiki

Matrix-assisted laser desorption/ionization-time of flight mass spectrometry imaging (MALDI-TOF MSI) is a powerful technique that can visualize the distribution of chemical compounds in a tissue specimen without using antibodies or staining. In the case of strawberry fruit, while distribution of soluble carbohydrates, organic acids and anthocyanins have been visualized utilizing MALDI-TOF MSI, the methodology has seldom been used to explore the distribution of plant hormones including abscisic acid (ABA). It is well known that ABA plays an important role in fruit maturation and may act as a seed germination inhibitor in strawberry fruit, as reported for watermelon. However, since the concentration of ABA in strawberry fruit is quite low, it has not been detected utilizing MALDI-TOF MSI. To visualize the distribution of ABA in strawberry fruit, we used the Enomoto method, where the sample is pretreated with Girard's reagent T (GirT). In this study, a thin (100 µm) specimen of a fully matured fruit of ever-bearing type strawberry ('Suzuakane'), which had been frozen and stored at -80°C, was cut on a cryomicrotome, and then mounted on an indium tin oxide (ITO)-coated glass slide. After several trials to improve on the Enomoto method, we succeeded in finding suitable pretreatment conditions for detecting ABA in strawberry fruit. The specimen, which was sprayed previously with GirT and α-cyano-4-hydroxycinnamic acid (CHCA) as a matrix, revealed that the concentration of ABA was relatively high in the cortex tissue, and at the vascular bundle conjugated with achenes. This finding may lead to a better understanding of the mechanisms of fruit maturation and the inhibition of seed germination in strawberry fruit.

Takumi Fujiki won the ISHS Young Minds Award for the best poster presentation at the X International Strawberry Symposium in China in March 2025.

› Contact

Takumi Fujiki, Graduate School of Agriculture, Hokkaido University, Kita 9-jo, Nishi 9-chome, Kita-ku, Sapporo 0608589, Japan, e-mail: takumi_496@eis.hokudai.ac.jp

The diversity of horticulture in Japan – flower production

Kazuo Ichimura, Masayoshi Nakayama, Masaki Ochiai and Kunio Yamada

Japan has a deep-rooted tradition of flower appreciation, reflected in practices such as ikebana (flower arrangement) and hanami (the viewing of the cherry blossom). However, the evolution of Japan's flower industry is indicative of a broader economic and cultural transformation. The revival of cut flower production after World War II was driven by economic recovery and urbanization, leading to the increased utilization of cut flowers and potted plants in daily life.

The first horticultural boom in the 1970s made flowers more accessible to the public, whereas the second boom in the 1990s reflected a growing interest in home gardening, possibly influenced by lifestyle trends and increased leisure time. Since 2010, the focus on miniature houseplants and succulents has aligned with global trends favoring compact, low-maintenance plants suitable for urban living.

In 2000, the production value of floriculture products in Japan peaked at around JPY 450 billion, but since then, the value of production has progressively declined (Figure 1). In 2023, the value of floriculture products was JPY 352 billion, around 3.7% of the total agricultural output.

Floriculture production in Japan, as classified in the national production statistics, occurs under one of four groups:

- Cut flowers: chrysanthemum (*Chrysanthemum* spp.), carnation (*Dianthus caryophyllus*), rose (*Rosa* spp.), gentian (*Gentiana* spp.), gypsophila (*Gypsophila* spp.), statice (*Limonium* spp.), gerbera (*Gerbera* spp.), lisianthus (*Eustoma grandiflorum*), lily (*Lilium* spp.), and alstroemeria (*Alstroemeria* spp.), as well as a wide assortment of cut leaves and branches;
- Bulbous plants: tulips and lilies;
- Potted plants: cyclamen (*Cyclamen* spp.), orchids (*Orchidaceae*), foliage plants and flowering trees;
- Bedding plants: pansy (*Viola* × *wittrockiana*).

Cut flowers in Japan

Not unexpectedly, the most important cut flower in Japan is chrysanthemum, accounting for around 40% of the total quantity of flowers produced and over 30% of the total production value. Lilies are next, in terms of production value. By value, the third largest crop includes roses, followed by lisianthus, carnation, statice, gerbera, alstroemeria, gypsophila and gentians (Figure 2).

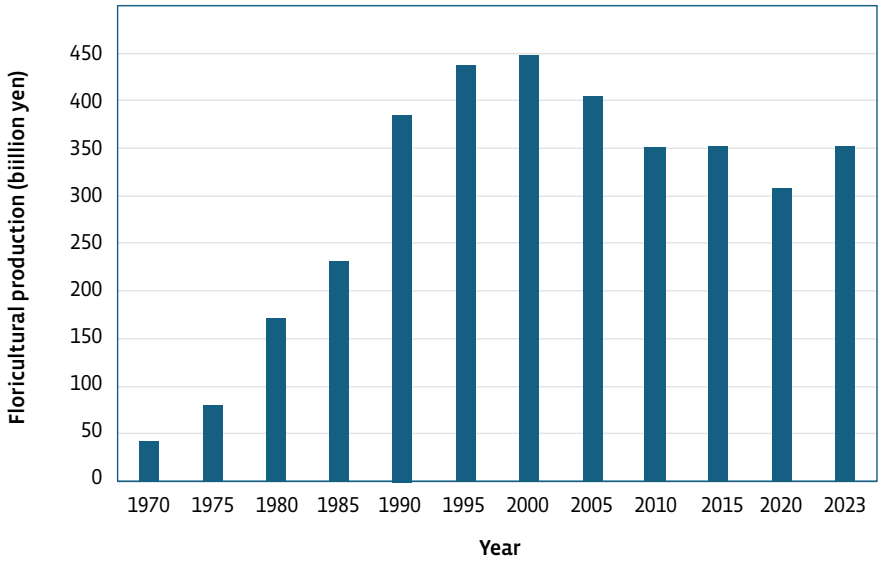


Figure 1. Annual trends in total production value of floriculture.

While many cut flowers are produced in greenhouses, some, such as gentians, are produced in open fields. Some items, such as chrysanthemums and roses, are produced all year round in greenhouses. For items such as carnation and gypsophila, which are planted on an annual basis, year-round supply is achieved by changing the production period between temperate and sub- tropical growing regions. Flowers that are less tolerant to high temperatures, such as stocks and ranunculus, are cultivated mainly in winter, whereas flowers that are less tolerant to low temperatures, such as sunflowers, are produced mainly in summer.

In 2023, chrysanthemum production was concentrated in Aichi and Okinawa, which together accounted for 60% of national output. Nagano and Aichi were the dominant producers of carnation (50%). Some 50% of the roses were produced in Shizuoka and Yamagata, while the production of lisianthus was primarily conducted in Nagano, Kumamoto and Fukuoka (45%). However, over 70% of the gentians were produced in Iwate.

For cut leaves, Tokyo, Okinawa and Kagoshima collectively accounted for over 80% of national production. Cut-branch production was mainly concentrated in Shizuoka and Ibaraki, which together contributed 40% of the output.

Many cut flowers, including chrysanthemums and lilies, are transported dry, whereas roses, lisianthus and gypsophila are generally transported wet.

Chrysanthemum

Chrysanthemum is the most important cut flower in Japan. Production is broadly classified into three types: standard, spray and small spray types. There is also a type called 'disbud', which is a type of spray chrysanthemum that has been manipulated to have only one flower (Figure 3).

Standard chrysanthemums are the most widely grown, accounting for 55% of the total production, followed by small spray-type and spray-type chrysanthemums.

Standard and spray-type chrysanthemums are generally grown in greenhouses, whereas

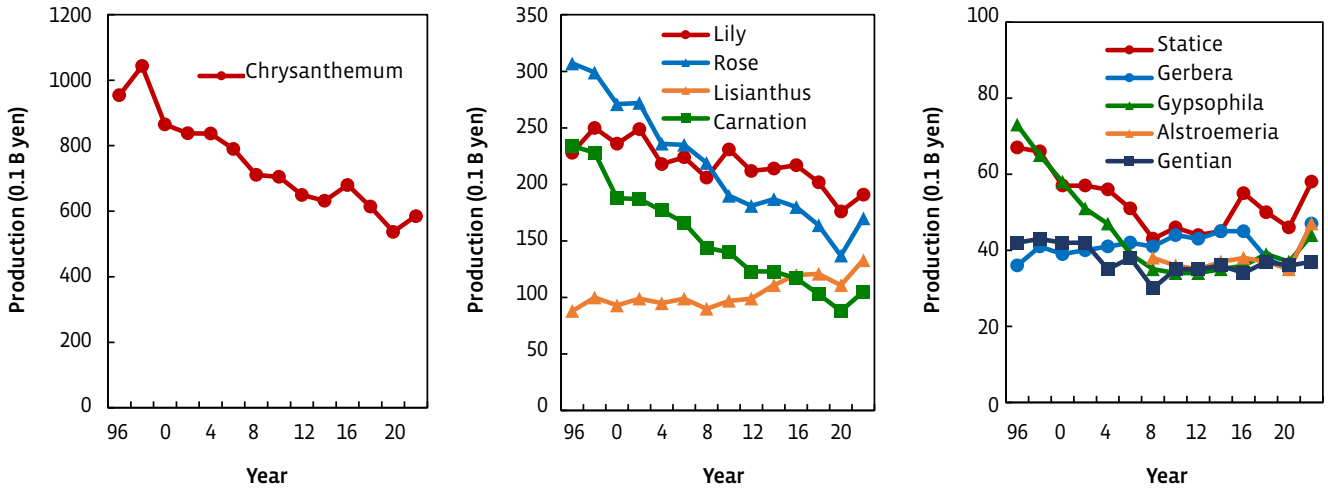


Figure 2. Changes in the production value of major cut flowers.

small spray-type chrysanthemums are often grown in open fields.

For all types of chrysanthemums, summer-autumn cultivars that do not flower late in the summer at high temperatures are grown in the summer, whereas autumn cultivars are grown in most other seasons. For standard and small spray-type chrysanthemums, cultivars bred in Japan are generally cultivated, whereas the spray-type cultivars were either bred in Japan or the Netherlands.

The sluggish demand for standard and small spray-type chrysanthemums such as flowers for funerals is a major obstacle for their production. In the future, it is hoped that the production of spray-type chrysanthemums and disbud mums will be promoted. The demand for small spray-type chrysanthemums increases significantly at peak demand periods, but because they are grown in open fields, shipping times are unstable. To address this issue, production under lights in open fields is becoming more widespread.

Lilies

Japan is the native habitat for many of the main lily species cultivated, but breeding has been carried out predominantly in the Netherlands. The resulting Oriental hybrids, LA hybrids and longiflorum hybrids are then cultivated in Japan.

Lilies are mostly grown in greenhouses, but LA hybrids are often grown in open fields. The main production areas are in Niigata, Saitama and Kochi.

Cut lilies have a relatively long vase life, but there are a number of issues including the failure of buds to open and the tendency for leaves to yellow. To address these issues, the use of flower preservatives is becoming popular. Pretreatment with silver thiosulfate complex (STS) for LA hybrids and a preservative containing 6-benzylaminopurine (BA), a synthetic cytokinin, for Oriental hybrids has proved effective in extending the vase life (Koike and Miyajima, 2020).

Rose

Roses can be broadly classified as standard and spray types, of which approximately 80% are standards. Currently, the number of old rose types is increasing, but the range of cultivars produced is diversifying rapidly. As breeding in Japan is limited, production is largely based on cultivars developed in Europe.

Roses are generally produced all year round in greenhouses with highly controlled environmental conditions, such as temperature, humidity, and carbon dioxide enrichment (Figure 4). There are three training methods: the traditional cutting-up, arching, and high-rack method. The traditional cutting-up method makes it easy to ensure a high yield, but the issue is that the volume of flowers produced tends to be low. Where roses are grown hydroponically, the arching method has been widely adopted as a means of increasing production per unit area. On the other hand, the high-rack method is a compromise between the two (Kajihara and Yabuki, 2021).

Figure 3. Flowers of 'disbud' chrysanthemum.

Figure 4. Roses produced in a highly environmentally controlled greenhouse.

However, the domestic production of roses in Japan is declining, with imports now accounting for almost 20% of the flowers consumed.

Carnations

In a similar manner, the domestic production of carnations in Japan has been steadily declining. Conversely, imports have been increasing, and hence supply has remained stable. Most cultivars have been bred in Europe, but others such as the 'Minami' series have been developed in Japan (Morimoto et al., 2019).

Carnations are grown in greenhouses. In warm areas, they are planted around June and harvested from around October until after Mother's Day the following year. In cooler areas, they are usually planted around February and harvested after June. By alternating the production period between warm and temperate areas, year-round supply is possible. The main production areas are in Nagano, Aichi and Hokkaido.

Gerbera

In Japan, gerbera is generally planted in spring and usually harvested over a period of two years. Approximately 40% of the crop is cultivated in Shizuoka Prefecture.

Unlike most other cut flowers, gerbera is harvested by pulling the stems to separate the flower from the plant without the use of scissors. However, in some production areas, the stem may be recut after harvest, while in others it is not. No significant difference has been observed in the vase life at the consumer stage.

Gerberas are generally transported dry. However, as they often exhibit a geotropic response – the stems bend upwards if packed horizontally – they are most often transported in vertical boxes (Figure 5).

Lisianthus (*Eustoma*)

While lisianthus is a plant native to North America, most seed companies in Japan have been developing the species as a cut flower. Initially, single-petaled cultivars dominated the market, but today, double-petaled cultivars are more common. More recently, cultivars with fringed petals, which have a beautiful flower shape, have become very popular (Figure 6).

Lisianthus is invariably grown in greenhouses. The main production areas are in Nagano, Kumamoto and Fukuoka Prefectures. Year-round supply is possible, but the amount produced in winter is much smaller due to flowering being promoted by long days and high temperatures.

The major issue with lisianthus production is its susceptibility to soil borne diseases. In particular, damping-off is a serious threat that requires the development of cultivars that are more tolerant.

Figure 5. Gerbera cut flowers shipped dry in a vertical box.

Figure 6. Lisianthus cultivar with fringed petals.

Figure 7. A gentian flowering trial in Yamaguchi.

Statice

While the individual flowers are generally short-lived and inconspicuous, statice is widely used as a Buddhist flower.

Statice is generally produced in greenhouses. The main production areas are Wakayama, Hokkaido and Nagano. In warm areas, statice is mainly shipped in winter and spring, while in the more temperate regions, statice is mainly shipped in summer and autumn. In the warmer areas, as production is possible without heating, it can be produced at a relatively low cost.

Invariably, most of the current cultivars are propagated by tissue culture.

Gentian

In Japan, the original species *Gentiana triflora* var. *japonica* (Ezo gentian) grows wild from Hokkaido to central Honshu, while *G. scabra* var. *buergeri* (Sasa gentian) is found in Honshu, Shikoku and Kyushu.

Over many decades, gentians have been bred by public institutions and private seed companies. They are broadly divided into Ezo-type cultivars that use Ezo gentians as the original species, Sasa-type cultivars that use Sasa gentians as the original species, and hybrid types derived from the two. Ezo-type cultivars are produced from July to October, and their petals open only slightly. Sasa-type cultivars are produced from September to November, but their petals open completely. The hybrid types have intermediate properties. Using a new species that is native to New Zealand, a new red cultivar is currently being developed (Hikage, 2013).

Gentian is generally grown in open fields. The main production area is Iwate Prefecture, which accounts for about two-thirds of the production in Japan (Figure 7).

Gypsophila

Gypsophila is a widely used 'filler' flower in Japan. In addition to the cultivars bred by Miyoshi Co., several Israeli cultivars are also produced.

Figure 8. Dyed and shipped cut gypsophila flowers.

Gypsophila is cultivated in greenhouses in Kumamoto, Fukushima, Wakayama and Hokkaido. In highland areas, such as in Fukushima Prefecture, it is harvested in summer and autumn, while in warm areas, such as Kumamoto Prefecture, it is harvested in winter and spring.

Due to issues associated with rehydration and its short vase life, it is common to transport it wet. The petals of most cultivars are white, but they are often dyed (Figure 8). The unpleasant odor is an issue, and in some production areas, cut flowers have been treated with a preservative to reduce the emission of these unpleasant odors.

Sunflower

While sunflowers have long been used as bedding plants, the Takii Seed Co. and Sakata Seed Co. have bred cultivars suitable for cut flower production. The 'Sunrich' series from Takii Seed and the 'Vincent' series from Sakata Seed are famous. These cultivars are characterized by small flowers and thin stems. In addition, these cultivars have the advantage of not producing pollen. By developing cultivars suitable for cut flowers, sunflowers have become a popular cut flower item. Sunflowers are generally grown in summer and autumn in simple greenhouses. Cultivars that can bloom within two months of sowing have also been developed. Unlike many other cut flowers, sunflowers are produced with minimal fertilizer and with stems that are as thin as possible (Figure 9).

The major prefectures for the production of flowering bulb crops are Kagoshima, Toyama, Niigata and Miyazaki.

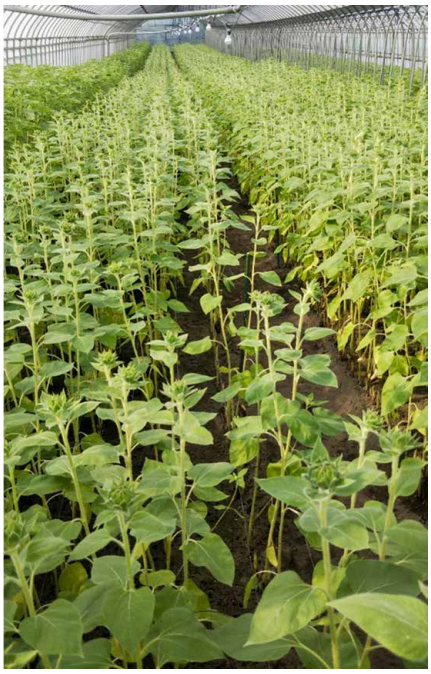


Figure 9. Sunflowers produced in a simple greenhouse.

Figure 10. Dahlia 'Eternity Shine' with long vase life.

Dahlia

While dahlias have also been traditionally used as bedding plants, Mr. Washizawa of the Akita International Dahlia Garden has developed several excellent cultivars for cut flower production including 'Kurocho', 'Kamakura' and 'Mitchan'.

Traditionally, dahlias were grown in open fields, but today, most are grown in greenhouses. In the temperate regions, dahlias are mainly grown in summer and autumn, with production in winter and spring in the warmer regions. The main production areas are Nagano, Hokkaido, Akita, Yamagata, Fukushima, Chiba and Nara.

The biggest drawback of cut dahlia is the short vase life, but Dr. Onozaki of the National Agriculture and Food Research Organization (NARO) has developed the 'Eternity' series, where the cultivars have a much improved vase life (Figure 10) (Onozaki et al., 2024). In addition, preservatives that are effective in extending the vase life of cut flowers have been identified.

Ranunculus

Ranunculus is intolerant of high temperatures, hence production in Japan is confined to winter to spring. Mr. Kusano (Aya Engei) recently developed a new cultivar with a long stem that is proving popular as a cut flower. A group of cultivars with glossy petals, known

Figure 11. The flowers of Lux series grown in a greenhouse.

as the 'Lux' series, has been developed by crossbreeding with wild species (Figure 11). In the past, most were shipped as spray types, but today, the side buds are removed, and they are shipped with only one flower. The main production areas are Miyazaki, Nagano, Kagawa, and Nagasaki.

Potted flowering plants in Japan

Among the potted plants, the following species are the most popular. Each has different characteristics that appeal to Japanese consumers.

Cyclamen

Potted cyclamens are especially popular for the Christmas season, together with potted poinsettia. Targeting shipment from November and December, cyclamens are grown through the summer season. To prevent damage due to excessive heat, shading and misting is employed to cool the plants down, with the ebb and flow irrigation system or bottom irrigation system supplying the water.

In cultivating cyclamen in Japan, the 'Hagumi' technique is widely practiced where leaves in the central part of the bulb are physically moved and aligned around the outside of the pot, thereby creating a more luxurious plant (Figure 12). Although this requires a lot of extra effort, this is necessary as it substan-

Figure 12. A cyclamen plant whose flower stalks are gathered in the center (left) and leaves aligned (right) by the 'Hagumi' work.

Figure 13. Novel flower color cyclamen cultivars. A yellow flower cultivar with red eye (left) and a blue-purple flower cultivar (right).

tially increases the commercial value of the plants.

Because production is targeted at Christmas, cultivars with red flowers, which include pink and red-purple colors, are preferred. However, new cultivars with novel coloration – yellow and blue-purple have also been bred and produced in Japan (Figure 13). These efforts have largely allowed cyclamen to retain its leading position as the most popular potted plant.

Cyclamen production is concentrated in Nagano and Aichi, which collectively account for 30% of the total output.

Orchids

In Japan, potted orchids are widely used as a gift to express congratulations for all seasons. While there are numerous species, including cymbidium and cattleya, by value, the most significant is *Phalaenopsis*. Potted *Phalaenopsis* generally have flower sizes of between 10-15 cm and a stem length of over 70 cm. More recently however, a 'middy' type has evolved where the flowers are approximately 5 cm and stems between 30 and 70 cm (Figure 14). 'Mini' type *Phalaenopsis*, where the flower size is around 3 cm and stems are less than 30 cm, are also produced.

In producing *Phalaenopsis*, higher prices are paid when all the flowers line up and face one direction (Figure 15). Growers achieve this orientation using a technique called 'Shitate'. They use a pole with a bent edge and attach the flower stalk to the pole. Then cushion-like materials are inserted between the flower buds and the flower stalk to adjust the direction. Finally, the direction of the flowers is achieved by supplementary lighting from one direction.

Most growers utilize imported *Phalaenopsis* seedlings to produce the potted plants. Temperatures are maintained at 25°C during the vegetative growth stage and at 20°C to induce flower bud initiation. Cooling is therefore a significant cost during the summer months. To reduce the cooling cost, the more progressive growers are investing in more sophisticated environmental control systems. Orchid production occurs predominately in Aichi, Kumamoto and Fukuoka, which collectively account for over 50% of national output.

Carnation

Potted carnations are mainly used as a gift for Mother's Day in Japan. Today, one of the most appealing features is the attractive fragrance. The fragrance of these potted carnations is somewhat spicy and derived from eugenol. However, recent research has resulted in the development of cultivars with a vanilla-like sweet fragrance derived from another compound, iso-eugenol. As Japanese consumers prefer this fragrance, these cultivars are expected to do well in the market, with producers highlighting the sweet fragrance in their promotional campaigns (Figure 16).

Hydrangea

Like carnation, potted hydrangea plants are also used as a gift for Mother's Day in Japan. Production occurs initially outdoors after which mature plants are brought into the greenhouse. As hydrangea flowers at a differ-

Figure 14. Different sizes of *Phalaenopsis* plants: middy type (left) and general type (right).

Figure 15. A standard type *Phalaenopsis* with all flowers made to align in the same direction.

Figure 16. Fragrant carnations (left) and their sales advertisement in Mother's Day (right). The title of the advertisement is saying "Do you know the sweet fragrance of carnations?"

Figure 17. A mophead type cultivar of double and picotee pattern flower (upper) and a half-mophead type cultivar of double small flower (lower) of hydrangea. Either cultivar generates blue or purple, and red colorations by using different pH control techniques.

ent time compared to cyclamen, it is possible to share greenhouse space.

The predominant flower colors of hydrangea are blue, red and white. Manipulating the pH of the growing media can generate either blue or red coloration in some cultivars. As the pH declines, the blue color becomes more dominant, whereas as the pH increases, the red color becomes more dominant. Growers use nitrogen fertilizer to manipulate the pH: nitrate nitrogen to decrease the pH and ammonium nitrogen to increase the pH.

Today cultivars with a double flower are very popular. Some of the most recently released cultivars also have a marginal picotee pattern or simultaneously possess flowers at multiple stages of development (Figure 17).

› References

Hikage, T. (2013). Delivering a vision: transforming gentian into a new crop for the world markets. Breed. Res. *15*, 36–39. https://doi.org/10.1270/jsbbr.15.36 (in Japanese).

Kajihara, S., and Yabuki, M. (2021). Development and spread of 'high-rack' culture system for cut rose production. Hort. Res. (Japan) *20*, 125–130. https://doi.org/10.2503/hrj.20.125 (in Japanese).

Koike, Y., and Miyajima, T. (2020). Postharvest technology of lilies. Nogyo oyobi Engei. *95*, 597–602 (in Japanese).

Morimoto, H., Narumi-Kawasaki, T., Takamura, T., and Fukai, S. (2019). Analysis of flower color variation in carnation (*Dianthus caryophyllus* L.) cultivars derived from continuous bud mutations. Hort. J. *88*, 116–128. https://doi.org/10.2503/hortj.UTD-007

Onozaki, T., Fujimoto, T., and Azuma, M. (2024). Breeding and characteristics of new cultivars 'Eternity Peach' and 'Eternity Shine' in the dahlia Eternity series with long vase life. J. NARO Res. Dev. *17*, 53–69. https://doi.org/10.34503/naroj.2024.17_53 (in Japanese with English abstract).

› About the authors

› Kazuo Ichimura

Dr. Kazuo Ichimura is a research fellow at the Graduate School of Bioresources, Mie University, in Tsu, Japan. A plant physiologist specializing in ornamental plants, he previously served as Director of the Institute of Floriculture Science, NARO. In recent years, his research has focused on postharvest physiology and preservation technologies for cut flowers. E-mail: ichimuraphpkazuo@gmail.com

› Masaki Ochiai

Dr. Masaki Ochiai is an associate professor at Gifu University, Gifu, Japan. He is a plant physiologist of ornamental plants and particularly interested in breeding and propagation techniques. E-mail: ochiai.masaki.h3@f.gifu-u.ac.jp

› Masayoshi Nakayama

Dr. Masayoshi Nakayama is an ex-Director at the Institute of Vegetable and Floriculture Science, NARO, Ibaraki, Japan. He is a bio-organic chemist mainly engaging in the study on flower pigments including anthocyanin and other flavonoids. E-mail: nakayama.masayoshi925@naro.go.jp

› Kunio Yamada

Dr. Kunio Yamada is a professor at Gifu University, Gifu, Japan, and a senior editor of the Horticulture Journal. He is a plant physiologist of ornamental plants and pomology. E-mail: yamada.kunio.k0@f.gifu-u.ac.jp

International 3-Minute Horticultural Thesis (3MHT) competition at IHC2026, Kyoto, Japan

IHC 2026 Kyoto
www.ihc2026.org

We are pleased to announce that the "My 3-Minute Horticultural Thesis (3MHT) competition" will be conducted as an integral part of the XXXII International Horticultural Congress (IHC2026), with the final to be held on August 23, 2026, in Kyoto, Japan. Building on the success of the inaugural competition at IHC2022 in Angers, France, the competition seeks to recognize the efforts of up-and-coming scholars who stand out in their ability to effectively and engagingly summarize their research findings in just three minutes. The competition's primary goal is to challenge participants to articulate their research results in a manner that, while accessible, remains intellectually stimulating to a specialist audience with diverse backgrounds in the field of horticulture.

The presentation must demonstrate how their research contributes to the overarching theme of IHC2026, "Exploring the Diversity of Horticulture," and should align with one or more of the congress's secondary thematic areas:

- Stimulate the increased use of plants to improve the health and wellbeing of society, the enhancement of the environment and the strengthening of economies;
- Clearly demonstrate society's need for horticulture and the role it plays in linking people with their environment;
- Bring together horticultural excellence from different countries to promote the best knowledge and practice from all over the world and to celebrate cultural and horticultural diversity;
- Promote productivity and international co-operation in professional horticulture.

The competition is organized into three sequential stages, as outlined below:

Stage 1: National preselection (July 2025 – March 15, 2026)

This initial competition phase is conducted by the ISHS Country/Region members, either by leveraging the existing national horticultural society or by the relevant regional ISHS Board member. Candidates eligible for participation must complete or be scheduled to complete their PhD between September 2024 and August 23, 2026. Candidates are preselected in the country where their university or laboratory is located, but they do not have to be citizens of that country. The selection criteria focus on academic achievements, including the quality and impact of the research and contribution to the themes of IHC2026. Each ISHS Country/Region member is encouraged to nominate two candidates (one male and one female) for the next stage by submitting their applications to the international jury. These submissions must be endorsed by a representative of the ISHS Country/Region member on the ISHS Council by March 15, 2026.

Stage 2: International preselection (March 15, 2026 – May 15, 2026)

An international panel, formed by the IHC2026 Organizing Committee, will include experts and professionals from around the world. This unbiased panel is responsible for the preliminary screening of PhD candidates. Applicants are required to submit a package that includes a curriculum vitae, a personal video highlighting the research's contribution to horticulture, a 1,500-word abstract, and an announcement of thesis defense dated before IHC2026. The evaluation will consider the quality of communication, English proficiency, and the innovation potential of the research. Six candidates (and three alternatives) will be selected for a primary list. Those on the primary list will be notified by mid-May 2026, and will receive a COMPLIMENTARY REGISTRATION for IHC2026, and must attend the congress IN PERSON.

Stage 3: Competition at IHC2026 (August 23, 2026)

The selected PhD candidates will deliver three-minute oral presentations on their research during the congress's opening ceremony. These presentations, designed for a broad audience of horticulturists, should summarize the key points of their research and its practical implications. The winners will be decided through a vote by the audience in attendance. The final winners (3) will receive the ISHS Young Minds Award, as well as the following prizes with the financial support of GREEN×EXPO 2027, BIE recognized International Horticultural EXPO held at Yokohama, Japan, in 2027: Gold: JP¥ 500,000; Silver: JP¥ 300,000; Bronze: JP¥ 200,000.

This competition presents a remarkable opportunity for PhD candidates to showcase their ability to distill complex scientific ideas into compelling, concise presentations tailored to an audience of specialists from various disciplines within horticulture. We warmly encourage national horticultural societies and universities that include horticulture in their curricula to actively promote student participation. For detailed information about the competition, including guidelines for participation, we invite interested candidates to visit www.ihc2026.org. The Organizing Committee will distribute the competition guidelines to all ISHS Country/Region members.

Contact

Prof. Yukio Ozaki, Chair of the International Jury, e-mail: 3mht-competition@ihc2026.org; web: https://www.ihc2026.org/3mht-competition/

How an Israel-India collaboration changed the destiny of date palm farmers in Kutch, Gujarat, India

Rina Kamenetsky Goldstein

The date palm (*Phoenix dactylifera* L.) is one of the most important fruit crops in arid regions. It is widely cultivated because of its high productivity and the high nutritional value of the fruit, while mature trees also play a crucial role in preserving ecosystems threatened by desertification. The fruit of the date is not only delicious and naturally sweet, but also highly nutritious, for it contains carbohydrates (70%) along with essential vitamins A, B2 and B7, and essential minerals such as potassium, calcium, copper, manganese, phosphorus, sulfur and iron. Furthermore, the production of dates generates rural employment and provides a major source of income for smallholder farmers, contributing to food security and rural livelihoods.

In 2023, world production of dates was about 10 million tonnes, led by Egypt, Saudi Arabia, and Algeria. Approximately 150 million date palms are cultivated on 1,300,000 ha across the Middle East, North Africa and the Sahel region (FAOSTAT, 2025). Some cultivation also occurs in parts of East and South Africa, Mexico and the United States, but most regions in India are not suitable for date palm cultivation due to climatic limitations (Shah, 2014).

Centuries ago, traders from Arab countries brought dates as food when they traveled to the Kutch district (also spelled Kachchh) in Gujarat, western India. After consuming the fruit, they discarded the seeds, which later germinated and grew into the first date palm trees in the region. Kutch, with its capital in Bhuj, is bordered by the Gulf of Kutch and the Arabian Sea to the south and west, and the Great and Little Rann of Kutch seasonal wetlands surround its northern and eastern regions (Figure 1).

Historically, Kutch was considered a backward region due to its remote location and partially submerged geography. The region's major food crops include wheat, bajra, millet and pulses, while mango, papaya, lemon and pomegranate are the major horticultural crops (https://kachchh.nic.in/economy).

Date palms play an important role in the region's agro-economy, helping to combat desertification. In addition to improving farmers' socio-economic status, the cultivation of date palms has contributed to reducing nutrient deficiencies within the local population and decreasing the dependence on imports.

Figure 1. Geographical location of Kutch. https://upload.wikimedia.org/wikipedia/commons/3/3e/Map_GujDist_Kuchchh.png

In most countries, date palm cultivation is based on true-to-type vegetative propagation from offshoots. In the last few decades, vegetative propagation has been performed through tissue culture. However, in Kutch, propagation has traditionally been based on sexual reproduction through seeds. As dates are a dioecious species, half of the seedlings turn out to be male that do not produce fruit. The other half are females, but each tree has different fruit characteristics. Long-term seed propagation has resulted in thousands of locally grown trees, displaying a wide range of fruit colors including yellow, pink, red and orange, with diverse taste profiles. Because of the Monsoon summer rains, date fruits seldom ripen completely and fail to dry like in other date-growing regions. However, the region produces dates with relatively low astringency for fresh consumption, harvested in June, just before the monsoon season begins in July.

Thirty years ago, the German-Israel Fund for Research and International Development (GIFRID) approved a project to introduce modern date palm cultivars and optimize production protocols in Kutch. In 1995, locally produced dates were sold for Rs 3-8 kg^{-1}, with an average fruit yield of 100 kg $tree^{-1}$.

To enhance productivity and quality, Mr. Moti Harari, a member of GIFRID's Board of Directors, proposed a technology transfer project. As part of this initiative, experts from Israel were invited to assist local farmers by sharing the latest advancements in date palm cultivation.

At that time, Israel's date palm industry already used advanced technologies, cultivar selection methods and research-driven practices. A coordinated farmers' council managed both the market and the industry, leading to significant advancements in knowledge. In 1996, Mr. Amnon Greenberg, manager and researcher at the Southern Arava R&D Station, was invited to lead the project in Gujarat. He collaborated closely with local experts, including Navin N. Sodagar, a date palm cultivation advisor; Dr. M.H. Mehta of

Gujarat Agricultural University; Mahubhai H. Pandit, director of the Shree Vivekanand Research and Training Institute in Mandvi, Kutch; and Hasmukh Patel, manager of AGROCEL Industries Ltd.

In Kutch, local dates are generally harvested at full maturity, just before ripening and drying (doka stage), prior to the onset of monsoon. However, most cultivars introduced to Kutch from arid regions need a longer period and are harvested in August-September, during the monsoon. Israeli experts decided therefore, to focus their efforts on the evaluation of local germplasm, selecting for valuable traits, and the development of quality propagation material.

During the first stage of the project, the research team visited over 20 date growers and asked them to choose their best trees. These trees were evaluated for various quality parameters: fruit size, weight, color, sweetness, yield, rain tolerance, and harvest time. From this evaluation, three exceptional genotypes were selected and observed over three seasons. This provided a basis for the further development of local cultivars (Figure 2).

The next step was the propagation of the selected genotypes. Asexual propagation by offshoots allows the progeny to be identical to their parents, but is limited to only a few offshoots per tree, and the survival rate in the field is relatively low (< 60%). To overcome this constraint, clonal propagation using tissue culture is the preferred method of choice to produce genetically stable planting material in large quantities. The Mundra tissue culture laboratory was established in 2000 for the propagation of local and important cultivars. Today, it has evolved into a well-established company, Kutch Crop Services Pvt. Ltd. (KCS), that supplies clean plant material of 'Elite Kutch' and other local cultivars (https://kcslindia.com/).

The Shroff family and Shroff's Foundation Trust (SFT, https://www.shroffsfoundation.org/) made a significant contribution to this large and ambitious project. Their generous support helped establish experimental plots and fund irrigation equipment for local farmers. Mrs. Ranjan Shroff played a key role in the dissemination of knowledge, farmer education and experimental trials over several years. She also traveled to Israel to gain insights into date palm cultivation. Another family member, Ms. Parinita Gohil, serves as the CEO of Kutch Crop Services Pvt. Ltd.

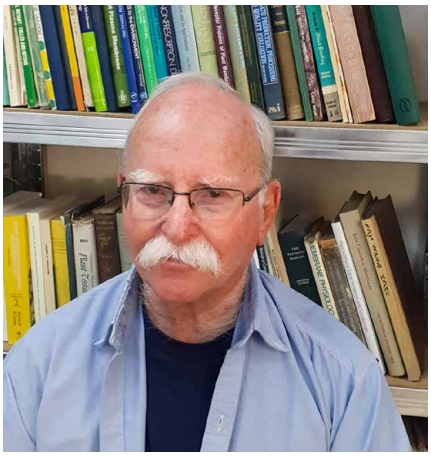
Special attention was given to improving horticultural methods and practices on local farms. In collaboration with local growers, as well as the Kinu Wadi model experimental plot, Amnon Greenberg developed comprehensive blueprints for planting, irrigation, propagation by offshoots, fruit thinning, plant protection, and monsoon resilience. These protocols were successfully implemented, leading to a transformation in regional date palm production practices. Today, KCS produces 30,000 young plants annually, and fruit yield has risen to 200 kg tree^{-1}. The yellow variety sells for approximately Rs 25 kg^{-1}, while 'Elite Red' commands a premium price of Rs 120 kg^{-1} in the Mumbai markets.

The GIFRID project ran for nine years. By 2003, technologies for production, plant protection and clonal propagation of several selected KCS cultivars had been successfully established. Later, Amnon Greenberg and his wife, Ilana, made three private visits to India, where they were always warmly welcomed as special guests.

Today, Kutch is the largest date palm growing district in India, with nearly 19,000 ha under cultivation, which produces almost 85% of the country's total production (Figure 3). Local scientists and agricultural experts at the Date Palm Research Station in Sardarkrushinagar Dantiwada Agricultural University, Gujarat (SDAU), and other horticultural centers, continue to enhance local cultivars and refine horticultural techniques.

Amnon Greenberg

Born in 1941, Amnon Greenberg has had a long and distinguished career in Israeli agriculture. After marrying Ilana in 1967, he moved to Kibbutz Yotvata in southern Israel, where he joined the date cultivation team. Following his graduation from the Faculty of Agriculture at the Hebrew University of Jerusalem, Amnon became the director of the Arava R&D Station and the coordinator of the Agricultural Committee of the Regional Council. He later pursued studies in economics and business administration and led the Southern Arava R&D until 2013. Since 2016, he has served as the Chairman of the Date Growers Board of Israel.



› Mr. Amnon Greenberg.

Beyond Israel, Amnon has played a key role in international agricultural initiatives. He led the establishment and promotion of date cultivation in Gujarat, India (1996-2005), managed the first installation of a drip irrigation system in Chinese orchards (1992-1993), facilitated Israeli-Jordanian agricultural cooperation through the 'Rahma' project (1998-2010), and provided consultation for a date cultivation project in Chad (2024).

Figure 2. First steps of the date project in Kutch, 1996-1998. A) Local plantation, B) Amnon Greenberg instructs local growers, C) Ranjan Shroff is working in date plantation, D) propagation by offshoots.

Figure 3. Successful production of yellow and red date cultivars in Kutch, 2024. Photos: Parinita Gohil and Harshal Gala.

In recognition of his exceptional contributions to agriculture and international collaboration, Amnon Greenberg was honored with a Lifetime Achievement Award of the Ministry of Agriculture of Israel.

The Shroff family

Sustainable development and the responsible use of natural resources are causes close to the heart of the Shroff family. Originally from Kutch, the family settled in Bombay. Over the years they established a large chemical business and pioneered many innovations in the chemical industry in India.

Their deep-rooted connection to Kutch inspired them to give back to the community. In 1975, they founded the Shree Vivekanand Research and Training Institute (VRTI) in Mandvi, and AGROCEL – a leading Indian company specializing in minerals, specialty chemicals, and plant nutrition.

Mr. Kishore Shroff, the son of one of the founders of the company, and his wife, Mrs. Ranjan Shroff, purchased a large farm in Kutch to maintain the connection to their childhood district. The farm specialized in growing dates, and Ranjan Shroff took a keen interest in improving their quality. In the early 1990s, she traveled to Israel, where she worked in a date orchard to gain hands-on experience.

Mrs. Parinita Gohil is a dynamic representative of the younger generation in her family. She currently serves as the CEO of KCS. In 2008, KCS took over the complete operation of in vitro date palm propagation. Today, the company produces over 30,000 plants annually, encompassing 16 different varieties.

As part of their commitment to agricultural development, the family donated a large plot of land and farm services for growing date palms under the GIFRID project. They actively participated in the Israeli-Indian collaboration, contributing to farmer education and knowledge exchange.

› Mrs. Ranjan Shroff.

› Mrs. Parinita Gohil.

› References

FAOSTAT. (2025). Dates production in 2023. Crops/regions/world list/production quantity/year (UN Food and Agriculture Organization, Corporate Statistical Database (FAOSTAT)) (retrieved April 2, 2025).

Shah, J.J. (2014). Date palm cultivation in India: an overview of activities. Emirates Journal of Food and Agriculture *26* (*11*). https://doi.org/10.9755/ejfa.v26i11.18986

› About the author

› Rina Kamenetsky Goldstein

Prof. Dr. Rina Kamenetsky Goldstein is a researcher in the Agricultural Research Organization, The Volcani Center in Israel and a professor of The Hebrew University of Jerusalem. She served as Israel's representative to the ISHS Council (2009-2023), Chair of ISHS Working Group Flower Bulbs and Herbaceous Perennials (2012-2016) and a Chair of the Israeli Interdisciplinary Research Center GREEN CITIES. E-mail: vhrkamen@volcani.agri.gov.il

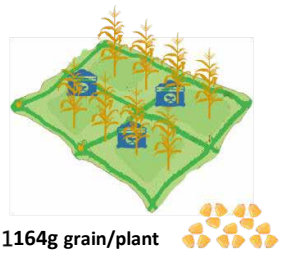
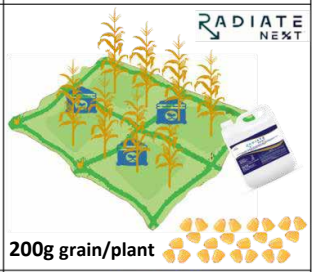
CH Biotech R&D Co., Ltd.

RADIATE NEXT™

Innovative Solutions for Sustainable Agriculture

- ☐ Increased nutrient use efficiency
- ☐ Improved drought resistance
- ☐ Enhanced resilience to multiple stresses
- ☐ Recommended for late vegetative & early reproductive growth stages

Under reduced fertilizer use

-40% Fertilizer use	Radiate NEXT
	
1164g grain/plant	200g grain/plant
-20% Yield loss	Yield recovered

Under reduced fertilizer use + drought

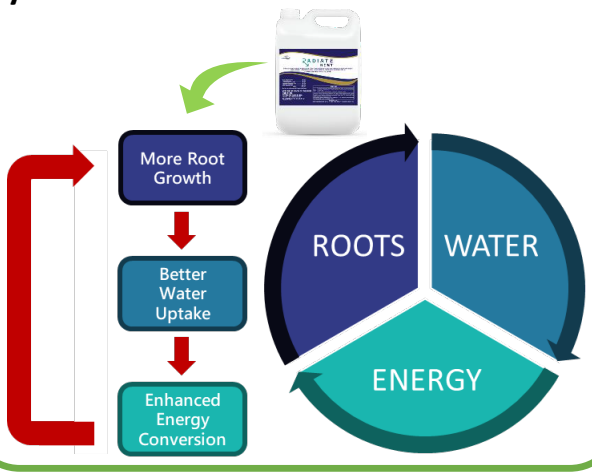
-40% Fertilizer use + drought	Radiate NEXT
	
141g grain/plant	179g grain/plant
-30% Yield loss	+20% Yield recovered

Radiate NEXT increases yield and farmer income in corn

- ➢ Yield increase: +8.5 Bu/acre
- ➢ Farmer income: +$61/acre

*Calculated based on corn unit price of $7.2/Bu

Radiate NEXT creates a cycle of yield increase



For more information, please contact us: info@chbio.com.tw

XVI International People Plant Symposium

Division Horticulture for Human Health #ishs_dhea

The XVI International People Plant Symposium (IPPS) was held on July 10-12, 2024, in Reading, United Kingdom, under the aegis of the International Society for Horticultural Science (ISHS) and the International People Plant Council (IPPC). It was the first in-person IPPS symposium since the COVID-19 pandemic. Day 1 was an optional tour of relevant horticulture settings focused on health. For Days 2 and 3, a full day and a half day of presentations took place, with the focus being horticulture as therapy from everyday life to health interventions.

Within the discipline of horticulture, there are enumerable ways in which health and wellness for humans can be improved through contact with and the use of plants and nature. These incredible opportunities (food security, reduction in pollution, urban temperature, etc.) are important to health for all populations across the world. These interventions are accessed by people experiencing ill health and disability as a means of recovery and restoration.

The most common approaches to nature-based interventions involve the use of plants and gardens with practices such as horticultural therapy (HT), which focus on carrying out horticultural activities as a therapeutic mechanism. HT is an emerging profession around the world, but there remains even within the sector, confusion as to what does or doesn't constitute HT. Clarity is similarly lacking in other nature-based interventions.

The focus of the symposium was to add greater clarity to the spectrum of how horticulture as therapy can support health at individual, community and societal levels, with representations of how the sector operates using different models and in different contexts. The keynote speaker, Dr. Rachel Bragg, OBE, Visiting Fellow, University of Essex, United Kingdom, addressed the full spectrum of horticulture therapy across everyday life, health promotion and intervention.

In a science that requires varied methodologies for research and investigation, the symposium represented a broad spread. There were, as expected, a range of more qualitative studies presented. Exploring health, particularly health interventions that are holistic in outcomes, requires considerable direct input from clients, leading to a more qualitative research base. However, the presentation of a few studies that used more easily controlled and quantitative methods was a positive addition to this symposium.

The symposium brought together a community of horticulture specialists who are

› Keynote speaker, Dr. Rachel Bragg.

› The majority of symposium participants.

involved in championing and pioneering this emerging sector. The 109 delegates came from 14 different countries, demonstrating how HT and other plant-based mediums for health and wellness have expanded across the first quarter of the 21st century. The opportunities for collaboration and inspiration arising from this symposium are considerable. The HT and other plant and horticulture related interventions for health are well placed to expand further, enhancing the life for potentially millions worldwide affected by ill health and disability. IPPS has a significant role to play in enabling more people to benefit from their interaction and engagement with plants and horticulture.

The ISHS Young Minds Award was presented to Mr. Risu Kim from Konkuk University, Republic of Korea, for the best oral presentation entitled "Psychophysiological and metabolomic effects of horticultural activities with soil inoculated with *Streptomyces rimosus* on adults with depressive mood".

The XVII International People Plant Symposium and IV International Symposium on Horticultural Therapies will be held at the XXXII International Horticultural Congress (IHC2026) in Kyoto, Japan, on 23-28 August 2026.

Damien Newman

› Practical workshop exploring access issues in horticulture.

› Sin-Ae Park (right), Chair of ISHS Working Group Horticultural Therapy, presenting the ISHS Young Minds Award for the best oral presentation to Risu Kim (left).

› Contact

Damien Newman, Thrive, The Geoffrey Udall Centre, Beech Hill, RG7 2AT Berks Reading, United Kingdom, e-mail: damien.newman@thrive.org.uk

XIII International Symposium on Integrating Canopy, Rootstock and Environmental Physiology in Orchard Systems

Division Physiology and Plant-Environment Interactions of Horticultural Crops in Field Systems **# ishs_dphy**
Division Precision Horticulture and Engineering **#ishs_deng**
Division Temperate Tree Fruits **#ishs_dfru**

The XIII International Symposium on Integrating Canopy, Rootstock and Environmental Physiology in Orchard Systems was held in Napier, New Zealand, over 6 days from 19 to 24 January 2025. This symposium brought together members from three ISHS Divisions (Physiology and Plant-Environment Interactions of Horticultural Crops in Field Systems, Precision Horticulture and Engineering, Temperate Tree Fruits) and three ISHS Working Groups (Environmental Physiology and Developmental Biology, Orchard Systems and Technologies, Rootstock Breeding and Evaluation) to highlight advances in knowledge to increase orchard productivity, enhance fruit quality and boost plant resilience to abiotic stresses.

A total of 172 participants from 22 countries attended the symposium. The programme included 96 oral and 35 poster presentations covering 23 different fruit crops. Throughout the meeting, sessions covered cultivar evaluation, environmental physiology, orchard management, digital horticulture, modelling, rootstocks, training systems and fruit quality.

Several issues and opportunities were highlighted by presentations throughout the symposium. These included: improved methods for measuring yield efficiency for

› Participants of the symposium.

apple rootstock evaluation, especially for assessing mature canopies or plants within breeding populations; the increasing use of new technologies and the large data sets generated to measure and quantify plant canopies aiding research and orchard management; and the increasing need for solutions to abiotic stresses that are experienced in orchards across the globe.

The symposium was opened by the CEO of Plant & Food Research, Mr. Mark Piper. Dr. Mike Currie from the Kiwifruit Breeding Centre gave the opening presentation "Making a new kiwifruit – productivity challenges from breeding to commercialisation of 'Zes008'".

As the previous International Symposium on Integrating Canopy, Rootstock and Environmental Physiology in Orchard Systems was run remotely because of Covid-19 travel restrictions, the focus of this symposium was to enhance face-to-face networking opportunities and also provide a mechanism for early- and mid-career researchers to showcase their research to an international audience. Five of the eight keynote speakers were either PhD students or early career researchers, who gave excellent oral presentations of high scientific quality. The opportunity for talented younger researchers to give a keynote was an important initiative to develop the next generation of leaders and researchers. Overall, this initiative was well received based on feedback from attendees at the symposium.

A pre-symposium workshop organised and led by Dr. Francisco Rojo, was held for students and early career researchers. Presentations were made by Drs. Jill Stanley and Brent Clothier from Plant & Food Research and Emeritus Prof Ted DeJong from the University of California – Davis, discussing their career development. Technical sessions on fundamentals of programming in R and developing computer applications for agricultural science were also run. Student researchers and the keynote speakers participated in a relaxed social event to meet their peers and to build connections. Furthermore, students and early career researchers were each allocated mentors to enhance their networking opportunities.

The ISHS Young Minds Award for best oral presentation was presented to Anna-Lena Haug from Free University of Bozen-Bolzano, Italy, for her presentation entitled "Physiological responses of apple trees on three rootstocks to decreasing water supply". The ISHS Young Minds Award for best poster presentation was presented to Tristian Dorfling from Provar, South Africa, for his poster entitled "Genotype main effect contribution to bud break and vegetative growth characteristics of young apple trees in response to diverse environmental conditions in South Africa".

› Field tour at Rockit Global's 2-dimensional planar cordon orchard, Hastings, New Zealand.

A post-symposium tour took participants to orchards, research stations, a kiwifruit packhouse, as well as showcasing the natural and cultural splendour of New Zealand, including waterfalls, geothermal areas, forest walks, Hobbiton, and a Māori cultural experience.

During the ISHS business meeting, it was decided that the next International Symposium on Integrating Canopy, Rootstock and Environmental Physiology in Orchard Systems would be held in Florianópolis, Brazil, in 2028 (convener Prof. Leo Rufato), followed by Girona, Spain, in 2032 (convener Luis Gonzales Nieto).

Ben van Hooijdonk and Adam Friend

› Anna-Lena Haug (right) receives the ISHS Young Minds best oral presentation certificate from Dr. Evelyne Costes (left), Chair of ISHS Division Physiology and Plant-Environment Interactions of Horticultural Crops in Field Systems.

› Tristian Dorfling (right) receives the ISHS Young Minds best poster presentation certificate from Prof. Luca Corelli Grappadelli (left), Chair of ISHS Working Group Environmental Physiology and Developmental Biology.

› Contact

Dr. Ben van Hooijdonk, Plant & Food Research, Private Bag 1401, Havelock North, 4157, New Zealand, e-mail: ben.vanhooijdonk@plantandfood.co.nz

Dr. Adam Friend, Plant & Food Research, 55 Old Mill Road, R D 3, Motueka, 7198, New Zealand, e-mail: adam.friend@plantandfood.co.nz

Postharvest2024 – IX International Postharvest Symposium, VII International Symposium on Postharvest Pathology, and X International Symposium on Human Health Effects of Fruits and Vegetables

Division Postharvest and Quality Assurance #ishs_dphq
Division Horticulture for Human Health #ishs_dhea
Division Vegetables, Roots and Tubers #ishs_dveg

From 11 to 15 November 2024, Rotorua, New Zealand, became the hub of cutting-edge discussions and breakthroughs in postharvest science, postharvest pathology and fruit and vegetable health during the international ISHS event: Postharvest2024.

This highly anticipated event brought together scientists, industry leaders, and policy-makers for a comprehensive exploration of the future of fresh produce preservation, sustainability, and health. Postharvest2024 was a combined gathering of the IX International Postharvest Symposium, the VII International Symposium on Postharvest Pathology, and the X International Symposium on Human Health Effects of Fruits and Vegetables (FAVHEALTH2024). Hosted by Plant & Food Research and Massey University, Postharvest2024 addressed a range of key challenges and opportunities that are shaping the global horticultural postharvest industry today. The event was well attended with 365 participants from over 25 countries, with around 300 oral presentations and 100 posters. In addition, there were 11 workshops and 5 field trips.

Attendees were welcomed with a rousing ceremonial pōwhiri (welcome) by the Pūkenga Mātauranga Māori. Dame Juliet Gerrard, the plenary speaker, discussed "Food loss and waste in New Zealand". She highlighted the significant economic and environmental challenges posed by food loss in the country and called for systemic changes across the food supply chain to reduce waste and promote sustainability, particularly in the postharvest phase.

One of the more memorable aspects of Postharvest2024 were the cultural experiences that complemented the scientific discussions. A visit to Mitai Village provided attendees with an opportunity to engage with New Zealand's Māori heritage. Guests participated in a traditional pōwhiri (welcome ceremony), followed by a hangi meal prepared using geothermal energy, allowing for a unique and immersive cultural experience. The Hobbiton movie set, now an iconic New Zealand landmark, served as the venue for the Postharvest2024 dinner, where attendees enjoyed a magical evening in the heart of Middle-earth, reflecting on the success of the event and the collaborative spirit that defined the week.

The exhibition area show-cased the latest technological advancements in postharvest science. From biodegradable packaging solu-

› Postharvest2024 pōwhiri – traditional challenge and welcome.

tions to cutting-edge refrigeration systems, the exhibition highlighted how innovative technologies are reshaping the postharvest landscape. Companies and research institutions presented novel coatings and new diagnostic tools designed to preserve fresh produce quality and reduce waste. Attendees had the chance to see how mathematical modelling and AI applications are being integrated into postharvest systems, promising to transform how postharvest processes are managed worldwide.

At the start of Postharvest2024, a special student-oriented workshop provided postgraduates and early-career researchers with guidance on navigating careers in postharvest science. This event was attended by 80 participants and was designed to inspire the next generation of postharvest professionals, with discussions on research opportunities, industry trends, and career paths within the field. Chief editors from Postharvest Biology and Technology (Chris Watkins) and Australasian Plant Pathology (Phil O'Brien) provided advice on publishing in postharvest, while other mid-career members of the community shared their career stories and advice.

The Asia-Pacific Postharvest Network (APPN), a newly created regional postharvest practitioner network, was launched. As part of an Australian Centre for International Agriculture Research (ACIAR) funded Small Research Activity (SRA), Fran Doerflinger and Gwen Ortiz from Plant & Food Research and Sohail Mazhar from the Northern Territory Government invited 15 researchers from 11 countries to join a workshop just prior to Postharvest2024, where they worked on how the APPN would be structured and run sustainably over the following years with nominations and confirmations for the leadership team of APPN. The network seeks more members and member countries to sustainably grow into the future and enable collaborations and knowledge exchange across the region.

New Zealand Retiree Awards

Postharvest2024 was also an opportunity to celebrate our kiwi heritage of world-leading postharvest research with awards to our colleagues, mentors and friends Errol Hewett, Ian Ferguson and Julian Heyes. Errol Hewett started and, along with colleague Nigel Banks, built the postharvest research discipline at Massey University. Later in his career he occupied very significant leadership roles in ISHS, including the postharvest area. Ian Ferguson came from a more fundamental background but built a world-class reputation in postharvest science, leading the Mt Albert postharvest group for many years, and becoming Chief Scientist of Plant & Food Research. He was also co-editor of Postharvest Biology and Technology for many years. Massey University's Julian Heyes (who was formerly with Crop & Food Research) was Chair of ISHS Commission Fruit and Vegetables and Health from 2014 to 2018. His research centred around maintaining quality during postharvest storage of fresh products from export products through to supply chains in developing countries.

Finally, we want to thank our diverse sponsors who made it possible to run this packed premium event.

IX International Postharvest Symposium

A central theme throughout the IX International Postharvest Symposium was the integration of innovative technologies into postharvest practices. Scientists discussed the impact of non-destructive assessment techniques – novel diagnostics for detecting diseases and chilling injuries without damaging the produce. Tools for allowing better maturity assessment and help in understanding the physiology of ripening, all of which are vital for ensuring fruits and vegetables reach consumers in their best possible condition, were also discussed. The application of 1-MCP (1-methylcyclopropene) both pre- and postharvest, controlled atmospheres, and modified atmosphere packaging (MAP) to extend shelf life and reduce disorders were further key topics of discussion. Discussions on skin disorders and how different harvesting and storage techniques affect the overall quality of produce underscored the importance of maintaining produce for longer periods.

James Giovannoni spoke to all three symposia on "Postharvest challenges and the promise of genomics," emphasising how genomic technologies like CRISPR are revolutionising postharvest practices. He discussed how gene editing can improve resistance to environmental stresses, extend shelf life, and create crops that are more adaptable to changing climates, ultimately improving food security.

Sessions throughout the week also focused on food safety, consumer perception, and food waste, all of which are growing concerns in the global food system. Experts examined how the various postharvest tools can address these issues by slowing spoilage and preserving freshness, thus reducing food waste at various points in the supply chain.

ISHS Young Minds Awards were presented to Isabel Ortega-Salazar from UC Davis, USA, for the best oral presentation entitled

› Attendees of the student and early-career workshop examining the diversity of careers in postharvest and publishing skills.

› Julian Heyes, Ian Ferguson and Errol Hewett – a strong legacy of world-leading postharvest research in New Zealand.

› Participants of the IX International Postharvest Symposium. While New Zealand is a long flight, we were delighted to welcome 290 postharvest people, and 365 attendees across the whole event.

"Targeting pectin degrading enzymes using CRISPR-Cas9 for improving tomato fruit shelf-life and processing quality", and Muhammad Tayyab from ATB Potsdam, Germany, for the best poster entitled "3D cloud point monitoring of purple carrots and golden kiwis during drying process".

The symposium also included a variety of engaging and informative field trips, offering participants the chance to visit a wide range of industry sites across the region. Among the locations were Scion, New Zealand's Crown research institute (CRI) that leads forestry research and innovation; Trevelyan's Pack and Cool, a company specialising in the packing and cooling of kiwifruit with a strong sustainability focus; Apata, a company at the forefront of kiwifruit postharvest technology; and RoboticsPlus, a company developing robotic solutions for the agriculture sector. These visits gave attendees the opportunity to witness firsthand how the latest technologies and innovations are being applied in the field.

Other notable field trips included visits to Plentyflora, a company focused on sustainable gerbera production; Plant & Food Research, another New Zealand CRI and a world-class research facility working on everything from crop development to postharvest technologies; Seeka, a leader in the postharvest management of kiwifruit; Mamaku Blueberries who trial new blueberry varieties and produce a diverse range of blueberry products with health benefits; and A.S Wilcox & Sons Ltd, known for its innovative vegetable offerings and packaging solutions. These field trips provided participants with valuable insights into the real-world application of the research and ideas discussed during the symposium sessions.

In addition to the scientific sessions and field trips, a series of workshops provided attendees with in-depth opportunities to explore

› ISHS Young Minds Award ceremony.

specific topics. There were six workshops in the postharvest space: a workshop on cool-chain monitoring technologies, which are essential for maintaining the quality of fresh produce during transport. Market access and ionising radiation were examined as key considerations for international trade of fresh produce. A workshop on food loss in the Asia-Pacific region presented diverse experiences in the region, particularly where lack of infrastructure or systems pose challenges to good postharvest practices. Other workshops included crop plants as models for studying plant health, sustainable packaging solutions (held at Scion), which emphasised the importance of environmentally friendly materials in packaging, and reducing the gap between fundamental research and industry application, ensuring that scientific discoveries are translated into practical solutions. Finally, a workshop on the final day on food safety for fresh produce focused on improving practices to ensure the safe consumption of fresh produce.

As Postharvest2024 came to a close, attendees left Rotorua with a renewed sense of purpose and excitement for the future of postharvest science. The consensus among delegates was clear: the future of fresh produce postharvest systems lies in the integration of genomics, new devices, AI, and sustainability. Postharvest2024 demonstrated the power of collaboration across disciplines and borders, as experts, researchers, and industry leaders from around the world shared knowledge and insights. As the global food system faces increasing challenges related to climate change, population growth, and sustainability, the innovations presented at the IX International Postharvest Symposium offer hope for the future of postharvest science. With continued research and investment in sustainable practices, the postharvest sector is poised to play a crucial role in building a more resilient and sustainable food system for generations to come.

Looking ahead, the X International Postharvest Symposium will be held at the University of Georgia, USA, in 2028, where attendees will continue to explore the ever-evolving landscape of postharvest science.

Andrew East and Allan Woolf,
Conveners of the IX International
Postharvest Symposium

› Participants of the VII International Symposium on Postharvest Pathology.

VII International Symposium on Postharvest Pathology

The VII International Symposium on Postharvest Pathology was attended by 85 participants from 26 countries, who delivered 56 oral presentations and 31 posters. Talks were delivered across 12 sessions, encompassing most of the research topics studied by plant pathologists worldwide. Researchers delved into the growing importance of microbiomes – the bacteria and other microorganisms found on fruits and vegetables – and their role in phytosanitary processes and disease cycles, helping to ensure that postharvest practices are safe and sustainable. The latest results on novel controls, understanding disease pathways and biochemical processes, diagnostics and biocontrol were also presented.

Professor Samir Droby (sponsored by New Zealand Apples & Pears) from the Volcani Institute, Israel, gave an excellent keynote address that provided an overview of new approaches to achieving postharvest disease control with particular emphasis on the microbiome. Prof. Droby's address was delivered to participants of all three symposia during the combined first session conducted each day.

Two invited speakers gave complementary talks: Professor Lise Korsten from the University of Pretoria, South Africa, provided an overview of adoption of controls for postharvest produce losses. Wendy Schotsmans from Janssen Phamaceuticals, Belgium, gave an overview of the process for commercialising biocontrol agents, highlighting issues and problems that researchers need to be aware of.

ISHS Young Minds Awards were presented to Saskia Mesquida-Pesci from the University of California, Davis, USA, for the best oral presentation entitled "Early signatures of *Botrytis cinerea*-strawberry fruit interaction reveal the presence of gray mould disease before symptom development", and Tebogo Marutha from Stellenbosch University, South Africa, for the best poster entitled "Apple wet core rot postharvest management". Congratulations to both Saskia and Tebogo, and to the other student entries. The quality of the presentations was high, and it was difficult to select clear winners.

A workshop was organised by Reiny Scheper, Joy Tyson and Kerry Everett from Plant & Food Research. Ways to reduce synthetic chemical fungicide use for controlling postharvest pathogens were discussed, guided by Rishi Burlakoti, Marcel Wenneker, Cheryl Lennox and Noam Alkan, stimulated by the two organisers (Reiny Scheper and Kerry Everett), and contributed to by 45 workshop participants. An article summarising the outcomes of the discussion has been prepared and will be published in *Acta Horticulturae*.

The pathology field trip organised by Kerry Everett and Reiny Scheper was attended by 79 people. Two busloads alternated between a visit to an orchard on which both avocados and kiwifruit were grown and Seeka Headquarters (HQ) in Te Puke. Delegates listened to an explanation of avocado growing by Jonathan Dixon from Seeka, and Sonia Whiteman and Jessie Bong from Zespri discussed aspects of the kiwifruit industry in New Zealand. At Seeka HQ, a display of rotten kiwifruit, avocados, blueberries and apples was available for perusal by delegates. Local experts described the rots and their causal pathogens. Monika Walter spoke about blueberries, Shamini Pushparajah and Kerry Everett on avocados, Reiny Scheper and Kerry Everett on apples, and Kabir Shahjahan on kiwifruit.

A "Lenticel rots" (and others) workshop was conducted before Postharvest2024 at Plant & Food Research in Auckland. The workshop was jointly organised by Marcel Wenneker from Wageningen University and Research Centre, the Netherlands, and Kerry Everett from Plant & Food Research. Several interesting reports were presented by the 17 participants from nine countries. Country reports were delivered for Norway, the Netherlands, Chile, New Zealand, USA and Switzerland followed by scientific presentations covering several apple and pear diseases including *Elsinoe pyri*, *Neofabraea* spp., *Phlyctema vagabunda* and *Colletotrichum* spp., and stimulating discussion.

Many thanks to all the people who helped make this symposium a success: the session chairs, the workshop chairs and the participants, Zespri and Seeka for providing speakers and venues for the field trip, the

› One of the locations of the various tours – avocados are the third most important export fruit crop in New Zealand after kiwifruit and apples.

international scientific committee and the local organising committee.

The VIII International Symposium on Postharvest Pathology will take place in Norway, in May 2026, where the focus will remain on advancing disease control and exploring the role of microbiomes in postharvest management.

Kerry Everett, Convener of the VII International Symposium on Postharvest Pathology

X International Symposium on Human Health Effects of Fruits and Vegetables (FAVHEALTH2024)

FAVHEALTH 2024 was a fantastic symposium that brought together participants from around the world covering a range of disciplines and subject matter under the umbrella of plant-based foods for health. Everyone was very engaged and enjoyed some great discussions, as well as listening to the latest research.

The keynote presenter was Brent Clothier, Principal Scientist with Plant & Food Research, based in Palmerston North, New Zealand. His talk tackled "Sustainability challenges and future opportunities for food production in a changing world" and stressed the need for sustainable agricultural practices. He explored how climate change, resource depletion and the growing demand for food require innovative solutions in postharvest management to ensure food security, minimise environmental impact, and ensure the health and wellbeing of the population.

Eight speaking sessions were dedicated to FAVHEALTH, with a total of 30 speakers and four poster presentations. All four students eligible for the ISHS Young Minds Award gave an oral presentation. Our very commendable winner was Jung Cho from Plant & Food Research, New Zealand, who gave an amazing talk entitled "Stability of ascorbyl glucoside in crab apples under cold storage and heat stress".

In a session "Towards healthier diets" we learned from participants' insights gained from a long-term plant-based dietary intervention in New Zealand for healthier diets. There were a number of papers on the influence of genetics and postharvest factors. A keynote address on phytochemical exploration in fruits and vegetables for health was followed by details of projects focused on specific phytochemicals. These included glucosinolates in broccoli, metabolites within apple, cowpea genotypes and the stability of ascorbyl glucoside in crab apples.

Understanding the health effects of plant foods was a very popular topic and covered sarmentosin in blackcurrant, bioactives in radish microgreens, phenolics in Burdekin plum, fruit for blood glucose control, effects of pea and meat proteins on risk factors for colorectal cancer in rats, the radioprotective effects of *Garcinia mangostana* L. and *Curcuma longa* L., and the benefits of apples in terms of immunomodulatory and gastrointestinal impacts. We also held a more open discussion on initiatives to promote fruit and vegetable consumption. This was kicked off with a presentation of the work undertaken by 5+ A Day in New Zealand. Other initiatives happening overseas were discussed, and some of the barriers to increasing fruit and vegetable consumption, legumes and nuts, were discussed. A session on understanding the impact of growing systems on nutrient composition dealt with the impact of rising temperatures on metabolic profiles in blueberries, the effects of selenium and sulphur interaction on nutritional quality and bioactives in broccoli, and the impact of biodynamic and organic production systems on nutritional density.

Talks covered topics of interest from around the globe. We heard about provitamin A content of orange-fleshed mangoes, nutritional analysis of cassava leaves and New Zealand grown macadamias. An Australian project looked at mushrooms as a sustainable and feasible food-based solution to vitamin D deficiency, and we heard about the production of nickel-free strawberries and tomatoes in central Italy. An overview of the current and future developments for the food composition programme of the Pacific Islands was provided. The well-known chef and TV presenter Robert Oliver talked about the power of Pacific cuisine and the impact of TV programmes in returning people to more traditional diets. The final session on the value of traditional/indigenous crops focused on a number of Australian crops, including the nutritional value and phytochemicals in red-fleshed cultivars of plumcot and plum, native Australian citrus fruit and indigenous edible halophytes.

A workshop was dedicated to the topic of "Food and natural health product regulatory considerations". A presentation from Evelyn Mete of the Ministry for Primary Industries covered the regulatory requirements in Australia and New Zealand for making a self-substantiated health claim. Paul Blatchford from Zespri gave real-life examples of taking products to market with health claims and the work they have done to achieve a Food Standards Australia New Zealand (FSANZ) self-substantiated claim and a European Food Safety Authority (EFSA) claim. Finally, the subject of novel foods and regulatory considerations was touched on. The presentations resulted in lots of discussion on the challenges faced in trying to help companies get a claim, including the time and cost.

The XI International Symposium on Human Health Effects of Fruits and Vegetables (FAVHEALTH2026) will be held at the XXXII International Horticultural Congress (IHC2026) in Kyoto, Japan, on 23-28 August 2026.

Carolyn Lister, Convener of the X International Symposium on Human Health Effects of Fruits and Vegetables (FAVHEALTH2024)

› Some of the participants of the FAVHEALTH2024 symposium.

X International Strawberry Symposium

Division Vine and Berry Fruits	#ishs_dvin
Division Horticulture for Development	#ishs_ddev
Division Horticulture for Human Health	#ishs_dhea
Division Plant Genetic Resources and Biotechnology	#ishs_dbio
Division Precision Horticulture and Engineering	#ishs_deng
Division Protected Cultivation and Soilless Culture	#ishs_dpro
Commission Agroecology and Organic Farming Systems	#ishs_cmor

› Opening ceremony. From left to right: Xianzhong Ding, Representative of Foreign Affairs Office of Jiangsu Province; Wei Wu, Representative of Yancheng Municipal Government; Jiye Yan, Dean of Beijing Academy of Agriculture and Forestry Sciences; Tianhong Li, Vice President of Chinese Society for Horticultural Science; Jian Liu, Representative of Jiangsu Provincial People's Government; Peter Vanderborght, ISHS Executive Director; Bruno Mezzetti, Chair of ISHS Division Vine and Berry Fruits; Kehua Wang, Dean of Jiangsu Academy of Agricultural Sciences; Weining Zhang, Representative of Jiangsu Provincial Department of Agriculture and Rural Affairs; Zhenghua Ma, Representative of Yandu District, Yancheng City.

From March 16 to 21, 2025, the X International Strawberry Symposium (X ISS) of the International Society for Horticultural Science was successfully held in Yancheng City, P.R. China. This symposium was the first in-person global gathering of strawberry researchers since the VIII meeting in Quebec, Canada (2016), as the IX International Strawberry Symposium in Rimini, Italy (2021) transitioned to a virtual format due to COVID-19 restrictions.

The local organizers of the X ISS were the Strawberry Association (Chinese Society for Horticultural Science), the Institute of Forestry and Pomology of the Beijing Academy of Agriculture and Forestry Sciences, and the Institute of Pomology of the Jiangsu Academy of Agricultural Sciences. The symposium attracted 316 delegates from 26 countries and regions across six continents. The program featured 80 oral presentations and 95 posters. During the event, technical training sessions and field observation activities were organized.

The symposium covered key areas including germplasm resource utilization and new variety breeding, cutting-edge biotechnology research, mechanisms of strawberry growth and development, cultivation physiology, pest and disease control, advanced seedling cultivation facilities and techniques, quality formation, postharvest processing, as well as emerging technology applications such as machine learning and spectral imaging.

Wild strawberries garnered significant attention from participants for their applications in growth and development studies, quality research, and breeding programs. Genomics-based molecular breeding strategies and region-specific breeding approaches tailored to diverse geographical zones were extensively debated during the sessions. Sustainable development emerged as a central theme, with research presentations covering most strawberry pathogens and pests – including anthracnose, powdery mildew, gray mold, and spider mites. Sustainable cultivation practices showcased cutting-edge advancements in integrated pest management (IPM), biodegradable mulch films, and high-efficiency substrate cultivation sys-

› Sonia Osorio (center), Chair of the ISHS Young Minds Awards selection committee, and Jian Sun (right), Symposium Convener, presenting the ISHS Young Minds Awards to A) Mark Porter (best oral presentation) and B) Takumi Fujiki (best poster presentation).

tems. Discussions emphasized the ecological benefits of replacing traditional polyethylene mulch with biodegradable alternatives in commercial operations.

The X ISS marks the second time China has hosted this global event, following the VII International Strawberry Symposium held in Beijing's Changping District in 2012. During X ISS, dedicated exhibition booths showcased scientific advancements and industrial developments in strawberry research from Changping District. Major Chinese strawberry-producing regions, including Jiande, Donggang and Changfeng, also utilized exhibition spaces to present their industry profiles. Over 100 companies exhibited innovative products and technologies, fostering cross-industry collaborations. A highlight was the Berry School technical training program, which attracted over 500 local growers for hands-on knowledge transfer.

The technical tour featured 128 premium strawberry varieties alongside cutting-edge cultivation systems, including vertical sub-

› Participants visiting Yandu Modern Agricultural Industry Demonstration Park in Yancheng city, China.

› Symposium participants at the closing ceremony.

› ISHS Business meeting. From left to right: Eva Vanmarcke, Stef Laurijssen, Peter Melis, Diethe Peeters and Jan Engelen, organizers of the XI International Strawberry Symposium in 2028 in Belgium; Bruno Mezzetti, Chair of ISHS Division Vine and Berry Fruits; Peter Vanderborght, ISHS Executive Director; Jian Sun, Yuntao Zhang, Mizhen Zhao and Jiajun Lei, Symposium Conveners.

strate cultivation with adjustable-height platforms, triangular trellising for optimized light exposure, agrivoltaic integration combining crop production with solar energy generation, smart greenhouse management leveraging IoT sensors and AI analytics, and non-destructive quality control using spectral imaging for automated berry grading.

ISHS Young Minds Awardees were selected by a panel of ten distinguished international experts who evaluated candidates based on their oral presentations and poster submissions. The committee ultimately chose two recipients. Dr. Sonia Osorio, Chair of the ISHS Young Minds Awards selection committee, and Dr. Jian Sun, Symposium Convener, jointly presented the award certificates to the winners: Mark Porter from the University of Florida, USA, for the best oral presentation entitled “Gene discovery and genomic prediction for improved strawberry flavor”; and Takumi Fujiki from Hokkaido University, Japan, for the best poster entitled “Distribution of abscisic acid in strawberry fruit visualized utilizing MALDI-TOF MSI”.

The ISHS business meeting was presided over by Prof. Dr. Bruno Mezzetti, Chair of ISHS Division Vine and Berry Fruits, and Dr. Jian Sun, Symposium Convener and Chair of the Strawberry Association, Chinese Society for Horticultural Science (SA-CSHS). Dr. Jian Sun first provided a brief overview of the symposium’s organizational efforts. The event then proceeded to the bidding phase for the next International Strawberry Symposium. Delegations from Greece, Cyprus, and Belgium formally presented their proposals. Following on-site inquiries and open discussions, ISHS voting members selected Belgium as the host for the upcoming XI International Strawberry Symposium in 2028. The organizers will be Research Centre Hoogstraten & Coöperatie Hoogstraten, with conveners Tom Van Delm and Peter Melis.

Shuangtao Li

› Contact

Shuangtao Li, Xiangshanruiwangfen Jia NO.12, Haidian, Beijing, P.R. China, e-mail: lishuangtao90@163.com

From the Secretariat

› New ISHS members

ISHS is pleased to welcome the following new members:

New Individual Members

Argentina: Ms. Andrea Castro; **Australia:** Dr. Marya Hashmatt, Ms. Ha Van Anh Nguyen; **Azerbaijan:** Mr. Elxan Nazimzade; **Belgium:** Dr. Jolien Bracke, Jean-Jacques Schul, Pasquinel Van Hoorickx, Dr. Steffen Vanneste; **Brazil:** Prof. Dr. Vespasiano Paiva Neto, Dr. Rosa Sanhueza; **Burundi:** Mr. Jean-Claude Murentgerantwari; **Canada:** Manav Bhalla, Cian Homeniuk, Mr. Brian Wagner; **Chile:** Arturo Badilla, Mr. Benjamin Mangelsdorff, Mr. Carlos Manterola-Barroso, Mr. Alberto Merino, Assoc. Prof. Cristian Meriño-Gergichevich, Ms. Carolina Mujica, Jose Manuel Paine Salgado; **China:** Yuhong Bai, Dr. Minmin Chen, Huan Dai, Prof. Dr. Yanming Deng, Prof. Dr. Jinggui Fang, Prof. Hui Feng, Haina Gao, Mr. Liyong Gao, Mr. Shan Gao, Assoc. Prof. Y.R. Gao, Prof. Dr. Wang Guoliang, Jialin Hou, Zhixia Hou, Prof. Jinyong Hu, Wangqi Huang, Assoc. Prof. Naizhe Ji, Dr. Yunhe Jiang, Yijia Jin, Assoc. Prof. Weikun Jing, Dr. Yaping Kou, Qian Li, Yang Li, Assoc. Prof. Yueqing Li, Ms. Yan Lin, Assoc. Prof. Yuanlong Liu, Prof. Dr. Chunmao Lyu, Wenjie Ma, Xiaoqian Ma, lv Mengyan, Baohe Miao, Jie Peng, Assoc. Prof. Qianqian Sheng, Dr. Fenghui Song, Xiaoming Sun, Prof. Dr. Changquan Wang, Dr. Min-Rui Wang, Prof. Xiaomin Wang, Assoc. Prof. Xin Wang, Dr. Xinye Wu, Xiaoyuan Xi, Dr. Ya-Liang Xu, Prof. Dr. Huijun Yan, Dr. Shuhua Yang, Ms. Pengcheng Yu, Hao Zhang, Dr. Lu Zhang, Yiping Zhang, Prof. Dr. Shiwei Zhao, Tianrui Zhu, Ms. Yiping Zou; **Chinese Taipei:** Chien-Ya Hung, Mr. HungTing Kuo; **Congo:** Assist. Prof. Mushagalusa Kasali Félicien, Dr. Constant Tchandema; **Cyprus:** Dr. Egli Georgiadou, Dr. Eleni Myrtsi; **Denmark:** Ms. Ninett Guldal, Dr. Thayna Mendanha; **Ecuador:** Prof. Dr. Mirian Capa Morocho; **Egypt:** Ms. Girija Page; **Estonia:** Mr. Martin Küttim; **France:** Ms. Emilie Gomes, Ms. Andréa Martelli; **Georgia:** Dr. Natalia Kharabadze; **Germany:** Mr. Simon Germer, Ms. Katrin Jaeger, Johann Markus Steiner; **Greece:** Alexios Alexopoulos, Ms. Christos Dordas, Ms. Anna Gkotzamani, Dr. Zoe Hilioti, Mr. Ioannis Ipsilantis, Mr. Damianos Kintzonidis, Mr. Sotirios Kosmas, Mr. Konstantinos Koularmanis, Assist. Prof. Georgios Lykokanellos, Mr. Konstadinos Mattas, Ms. Paschalia Mirmigkou, Ms. Katerina Papanastasi, Ms. Eleni Papoui, Dr. Dimitrios Platis; **India:** Dr. Ramudu Jujjuvarapu, Dr. Kisan Eknath Lawande, Mr. Yallaling Sanjay Chintale, Prof. Dr. V.K. Tripathi; **Indonesia:** Ms. Roudhoh Khalimatus Zuhro, Hisworo Ramdani, Ms. Sortha Simatupang, Prof. Imas Sitanggang, Dr. Susilawati Susilawati, Dr. Netti Trinaprilla, Mr. Warid Warid, Dr. Dyah Retno Wulandari; **Israel:** Assoc. Prof. Yaron Sitrit, Mr. Eyal Yonai; **Italy:** Nicolo' Botta, Dr. Francesco Busto, Assoc. Prof. Simone Carradori, Antonio Dattola, Ms. Anna De Vizio, Ms. Chaimae El-Rhouttais, Luciana Galetto, Antonella Gori, Dr. Rosangela Limongelli, Dr. Roberteo Masturzi, Dr. Massimo Mencuccini, Dr. Stefano Negri, Dr. Roberta Paris, Fabio Pietrolucci, Dr. Giuseppe Rosiello, Dr. Claudio Sonnati; **Japan:** Dr. John Jewish Dominguez, Yuto Hirata, Prof. Dr. Masahiro Kanaoka, Ms. Mika Kawai, Takuya Kenmochi, Mr. Yukinari Kiryu, Dr. Sota Koeda, Dr. Miyuki Kunihisa, Dr. Tsuyoshi Maruyama, Prof. Dr. Shusuke Matsushita, Prof. Dr. Rie Miyaura, Assist. Prof. Ryosuke Munakata, Prof. Kaeko Murota, Dr. Tsuneo Ogata, Claudio Ponce, Dr. Fumio Sato, Dr. Kenichi Shibuya, Arachaporn Sripawatakul, Dr. Koji Sugahara, Assoc. Prof. Fumie Tazaki, Dr. Manabu Watanabe, Dr. Ittetsu Yamaga, Takayoshi Yamane, Assoc. Prof. Eriko Yasunaga, Prof. Gaku Yokoyama; **Kenya:** Mr. Ekiru Davidson Epoong; **Korea (Republic of):** Mr. Young Chang Jo, Assoc. Prof. Young Boon Lee; **Luxembourg:** Mr. Tommaso De Gregorio; **Malaysia:** Noor Anilizawatima Sulong, Dr. Ramanan Ramakrishnan; **Mexico:** Liliana Baeza Herrera, Cuauhtemoc Bolanos, Dr. Hector Cabrera Mireles, Prof. Stefan de Folter, Mr. Manuel Felipe López Mora, Fidel Mejia Lara, Dr. Lislie Solís-Montero, Victor Hugo Torres Cervantes, Dr. David Torres, Thelma Gpe Valdez Reyes, Manuel Vargas; **Netherlands:** Mr. Jaap Bouwman, Mr. Peter Cox, Mr. Run Li, Mr. Raphael Quenum; **New Zealand:** Ms. Charlotte Bridger, Mr. Blair Davidson, Rachael Lockhart, Mackenzie Maaka, Catherine Rondeau-Bouvrette, Luke St John; **Nigeria:** Dr. Lateefat Hassan; **Norway:** Mr. Svein Kolltveit, Marte Marie F. Ranvik; **Poland:** Prof. Mariusz Piskula; **Russian Federation:** Dr. Dmitrii Gladkov; **Saudi Arabia:** Mr. Wesley Hopwood; **Senegal:** Ms. Ndeye Awa Gueye; **Slovenia:** Ms. Lucija Luskar; **South Africa:** Mr. Nico Ferreira, Ms. Magdaleen Hattingh, Mr. Nico Liebenberg, Assoc. Prof. Robert Skelton; **Spain:** Iván Colmena, Dr. Antonio Jesús Galán Jiménez, Dr. Ma Garau, Prof. Dr. Carlos Gilarranz-Casado, Andrew Kim Lopes Ferraz, Mr. Javier Marrufo, Dr. Miguel Antonio Padrón Mederos, Dr. Verónica Pérez Méndez, Mr. Angel Pintor, Prof. Dr. Domingo José Ríos Mesa, Mr. Paco Roman, Marta Inès Saludes Zanfaño, Rosa Tejada Rascón, Dr. Chunhao Zhang; **Spain - Canary Islands:** Dr. Luis Matías-Hernández; **Sri Lanka:** Ms. Senali Senarathna; **Sweden:** Prof. Charles Melnyk; **Switzerland:** Dr. Maha Deeb, Dr. Alexandra Rosenmund; **Thailand:** Biyi Chen, Dr. Lamai Maikaeo, Assist. Prof. Sainiya Samala, Assoc. Prof. Pongsakorn Suppakittpaisarn; **Togo:** Dotse Kodjovi Amouzou; **Trinidad and Tobago:** Afiya John, Mr. Earl Medford; **Turkey:** Assist. Prof. Ersin Caglar, Mr. Tahir Cetinkayali, Assist. Prof. Murat Helvaci, Prof. Dr. Soner Kazaz, Assist. Prof. Emine Kirbay, Dr. Mansur Uluca; **United Arab Emirates:** Dr. Shyam Kurup, Mr. Ajayan Vasudevan; **United Kingdom:** Ms. Victoria Adams, Mr. Toby Anderson von Trampe, Dr. Soojin Oh, Mr. Tom Wire; **United States of America:** Leo Anderson, Dr. Obyedul Azad, Prof. Rachel Bezner Kerr, Dr. Jennifer Bousselot, Assist. Prof. Jacob Buck, Pallavi Chavan, Dr. Maria Chavez, Sisi Chen, Ms. Isabelle Chew, Christopher Clavet, Ms. Sanchita Das, Mr. Domenic DeCaria, Dr. Lilian Dube, Lauren Eberth, Laura Fletcher, Jose G. Franco, Sarah Franco, Greta Gallina, Dr. Mary Gerritsen, Dr. Mario Gutierrez, Tanner Hamerling, Andrew Hubbard, Frankie Johnson, Mr. Shinji Kawai, Dr. Kevan Lamm, Mr. Ashley Lelie, Hengsong Li, Dr. Melissa Muñoz, Abhishek Neupane, Dr. Jennifer Noseworthy, Dr. Kyoo Rok Park, Dr. Asmita Paudel, Peter Petracek, David Roberts, Isabella Rodelius, Hande Saganak, Dr. Tatiana Sanchez-Jones, Derek Tomasini, Mr. David Tork, Dr. Gabriel Torres, Mr. John Webber, Assist. Prof. Reagan Wytsalucy, Allisa Zurbuchen.

› Calendar of ISHS events

For updates and more information, go to **www.ishs.org** › calendar of events. For a comprehensive list of meetings in each Division or Working Group use the "science" option from the website navigation menu.
To claim reduced registration for ISHS members, your personal membership number is required when registering - ensure your ISHS membership is current **before** registering. When in doubt, sign in to your membership account and check/renew your membership status first: **www.actahort.org** or **www.ishs.org**

Year 2025

- June 22-27, 2025, Almeria (Spain): **GreenSys2025 - International Symposium on Advanced Technologies and Management for Sustainable Greenhouse Systems.** Info: Prof. Dr. Diego L. Valera, Dpto. Ingeniería, Universidad de Almería, Ctra Sacramento sn, 04120 Almería, Spain. Phone: (34)950015546, E-mail: dvalera@ual.es or Prof. Dr. Francisco Domingo Molina Aiz, Universidad de Almería, CITE II-A, Despacho 1.07, Carretera Sacramento s/n, 04120 Almería, Spain. Phone: (34)950015449, Fax: (34)950015491, E-mail: fmolina@ual.es E-mail symposium: greensys2025@ual.es Web: http://www2.ual.es/greensys2025/
- June 23-26, 2025, Chicago, IL (United States of America): **XV International Symposium on Plant Bioregulators in Fruit Production.** Info: Todd Einhorn, Michigan State University, Horticulture, 1066 Bogue Street, Plant & Soil Sciences Building A338, East Lansing, MI 48824, United States of America. Phone: (517) 353-0430, Fax: (517) 353-0890, E-mail: einhornt@msu.edu or Prof. Dr. Randolph M. Beaudry, Michigan State University, Department of Horticulture, A22 Plant& Soil Sci. Building, East Lansing, MI 48824-1325, United States of America. Phone: (1)517355-5191ext303, Fax: (1)517353-0890, E-mail: beaudry@msu.edu or Dr. Steven McArtney, 1910 Innovation Way Suite 100, 870 Technology Way, Libertyville IL 60048, United States of America. Phone: (1) 847-968-4722, E-mail: steve.mcartney@valentbiosciences.com or Peter Petracek, 2045 East 8th Street, Duluth, MN 55812, United States of America. E-mail: tepdtep@gmail.com Web: https://www.canr.msu.edu/hrt/2025FruitBioReg/
- July 8-10, 2025, Melaka (Malaysia): **III International Symposium on Tropical and Subtropical Ornamentals.** Info: Prof. Dr. Asmah Binti Awal, Faculty of Plantation and Agrotechnology, UiTM Cawangan Melaka, Kampus Jasin, 77300 Melaka Merlimau, Malaysia. E-mail: asmah138@uitm.edu.my E-mail symposium: tso2025.secretariat@gmail.com Web: https://tso2025.org/
- August 3-8, 2025, Fort Collins, CO (United States of America): **IV International Symposium on Germplasm of Ornamentals.** Info: Mengmeng Gu, Dept. Horticulture & Landscape Architecture, Colorado State University, 1173 Campus Delivery, Fort Collins CO 80523, United States of America. Phone: (1)9792299683, E-mail: mengmeng.gu@colostate.edu or Dr. Youping Sun, Department of Plants, Soils & Climate, Utah State University, 4820 Old Main Hill, Logan Utah 84335, United States of America. Phone: (1)4357972972, E-mail: youping.sun@usu.edu Web: https://agsci.colostate.edu/hortla/isgo/
- August 4-8, 2025, Beijing (China): **XI International Congress on Hazelnut.** Info: Prof. Jianguo Zhang, Research Institute of Forestry, Chinese Academy of Forestry, Dongxiaofu 1, Haidian District, Beijing, China. E-mail: chinahazelnut2025@163.com E-mail symposium: chinahazelnut2025@163.com Web: https://rif.caf.ac.cn/chinahazelnut2025/
- August 25-31, 2025, Naples and Alba (Turin) (Italy): **I International Symposium on Temperate Tree Nuts: from Agroecologically Sustainable to Organic Production.** Info: Prof. Dr. Chiara Cirillo, Dept. Agricultural Sciences, University of Napoli Federico II, Via Università, 100, 80055 Portici NA, Italy. Phone: (39)081-2539381, Fax: (39)081-7755114, E-mail: chiciril@unina.it or Prof. Roberto Botta, DISAFA - University of Torino, Largo Paolo Braccini 2, 10095 Grugliasco (TO), Italy. Phone: (39)0116708800, Fax: (39)0116708658, E-mail: roberto.botta@unito.it or Prof. Dr. Tiziano Caruso, Department of Agricultural & Forest Science, University of Palermo, Viale delle Scienze, Edificio 4 ingresso H, 90128 Palermo, Italy. Phone: (39) 09123861207, E-mail: tiziano.caruso@unipa.it Web: https://ttn2025.it/
- September 7-12, 2025, Freising (Germany): **II International Symposium on Growing Media, Compost Utilization and Substrate Analysis for Soilless Cultivation.** Info: Dr. Dieter Lohr, Weihenstephan-Triesdorf University, Institute of Horticulture, Am Staudengarten 14, 85354 Freising, Germany. E-mail: dieter.lohr@hswt.de or Dr. Elke Meinken, Am Staudengarten 14, 85354 Freising, Germany. E-mail: elke.meinken@hswt.de or Prof. Dr. Nazim Gruda, University of Bonn, INRES Horticultural Sciences, Auf dem Hügel 6, 53121 Bonn, Germany. E-mail: ngruda@uni-bonn.de Web: https://www.growingmedia2025.com/
- September 16-19, 2025, Bogor (Indonesia): **IX International Symposium on Edible Alliums.** Info: Prof. Awang Maharijaya, Pakuan Regency, cluster Lingga Buana, Blok E6 no 24, 16680 West Java Bogor, Indonesia. E-mail: awangmaharijaya@apps.ipb.ac.id E-mail symposium: allium2025@apps.ipb.ac.id Web: https://allium2025.ipb.ac.id/
- September 22-26, 2025, Yunnan (China): **II International Symposium on Botanical Gardens and Landscapes.** Info: Prof. Yongping Yang, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, Menglun, Mengla, Yunnan, 666303, China. Phone: (86)6918716681, Fax: (86)6918715070, E-mail: yangyp@xtbg.ac.cn or Prof. Fuchuan Wu, Xishuangbanna Tropical Botanical Garden, Yunnan, China. E-mail: wfc@xtbg.org.cn or Prof. Dr. Kanchit Thammasiri, Department of Gardening and Horticulture, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Science, Menglun, Mengla, Yunnan 666303, China. E-mail: kanchitthammasiri@gmail.com E-mail symposium: bgl2025.china@gmail.com Web: https://bgl2025.casconf.cn/
- September 22-25, 2025, Bari (Italy): **VI International Symposium on Pomegranate and Minor Mediterranean Fruits.** Info: Assoc. Prof. Giuseppe Ferrara, Università di Bari, Dpt. Scienze Suolo, Pianta e Alimenti, Via Amendola 165/a, 70126 Bari, Italy. Phone: (39)805442979, Fax: (39)805442979, E-mail: giuseppe.ferrara@uniba.it or Prof. Dr. Stefano La Malfa, Di3A, Catania University, Via Valdisavoia 5, 95123 Catania, Italy. Phone: (39)095-354641, Fax: (39)095-234406, E-mail: stefano.lamalfa@unict.it E-mail symposium: info@pomsym2025.com Web: https://www.pomsym2025.com/
- October 8-10, 2025, Arusha (Tanzania): **International Symposium on Artemisia.** Info: Mr. Arnaud Nouvion, 12 rue d'Ouessant, Paris, France. E-mail: anouvion@suricate.org or Assist. Prof. Emmanuel Sulle, AKU-ACER, TRPI Road, P O Box 499, Arusha, Tanzania. Phone: (255)742333575, E-mail: emmanuel.sulle@aku.edu Web: https://www.artemisia-symposium.com/
- October 13-16, 2025, Kalamata (Greece): **X International Symposium on New Ornamental Crops.** Info: Prof. Anastasios

Darras, University of the Peloponnese, Antikalamos, Kalamata, 24100 None Kalamata, Greece. Phone: (0030)6974396588, E-mail: a.darras@uop.gr Web: https://newornamentals2025.uop.gr/

- October 14-18, 2025, Beijing (China): **V International Symposium on Plant Cryopreservation.** Info: Prof. Haiping Wang, 12 Zhongguancun Nandajie Haidian, Beijing, China. E-mail: wanghaiping@caas.cn Web: https://iot.cjhzcn.com:8284/ NEW
- October 20-24, 2025, Fort Myers, FL (United States of America): **IV International Symposium on Underutilized Plant Species.** Info: Dr. Timothy Motis, 17391 Durrance Road, North Fort Myers Florida 33917, United States of America. Phone: 2395433246, E-mail: tmotis@echonet.org or Dr. Carlos Iglesias Frascheri, 208 Weaver Mine Trail, Chapel Hill NC 27517, United States of America. Phone: (1)9843630400, E-mail: caiglesi@ncsu.edu or Dr. Arun Jani, California State University Monterey Bay, 100 Campus Center, Chapman Science Center, Seaside, CA 93955, United States of America. Phone: (1)831-582-4791, E-mail: ajani@csumb.edu Web: https://underutilizedplants25.org/
- November 5-7, 2025, Bogota (Colombia): **VI International Conference on Postharvest and Quality Management of Horticultural Products of Interest for Tropical Regions.** Info: Dr. Maria Soledad Hernandez, Amazonic Research Institute-Sinchi, Calle 20. No 5-44, Bogota, D.C, Colombia. Phone: (57)1 4442060, Fax: (57)12862418, E-mail: shernandez@sinchi.org.co or Ms. Luz Mantilla, Calle 20 No 5-44, Bogota 111211, Colombia. Phone: 576012442060, E-mail: luzmarmantilla@sinchi.org.co E-mail symposium: postharvestconference2025@sinchi.org.co Web: https://sixthicopocol.com.co/ NEW
- November 11-13, 2025, Shizuoka (Japan): **VI Asia Symposium on Quality Management in Postharvest Systems.** Info: Prof. Dr. Masaya Kato, Faculty of Agriculture, Shizuoka University, Ohya, Suruga, Shizuoka 422-8529, Japan. Phone: (81)54-238-4830, Fax: (81)54-237-3028, E-mail: kato.masaya@shizuoka.ac.jp E-mail symposium: asqp2025@gmail.com Web: https://asqp2025.org/ NEW

Year 2026

- January 18-23, 2026, Tatura, Victoria (Australia): **XI International Symposium on Irrigation of Horticultural Crops.** Info: Dr. Alessio Scalisi, Tatura SmartFarm, Agriculture Victoria Research, Dept Energy, Environment and Climate Action, 255 Ferguson Rd, Tatura, Victoria 3616, Australia. E-mail: alessio.scalisi@agriculture.vic.gov.au or Dr. Ian Goodwin, Tatura SmartFarm, Agriculture Victoria Research, Dept Energy, Environment and Climate Action, 255 Ferguson Rd, Tatura, Victoria 3616, Australia. Phone: (61)354831101, Fax: (61)358335299, E-mail: ian.goodwin@agriculture.vic.gov.au or Prof. Pablo J. Zarco-Tejada, SAFES, Faculty of Science, and, Department of Infrastructure Engineering, Faculty Engineering & Information Technol., Univ. Melbourne, Parkville, Victoria 3052, Australia. E-mail: pablo.zarco@unimelb.edu.au Web: https://www.irrigation2026.com.au/
- January 26-31, 2026, Kaohsiung City (Chinese Taipei): **VII International Jujube Symposium.** Info: Dr. Wen-Li Lee, Taiwan Agricultural Research Institute, No.530, Wenlong E.Rd., Fengshan Dist., 83052 Kaohsiung City, Chinese Taipei. Phone: (886)7310191 Web: https://jujube2026.com/
- March 15-20, 2026, Skukuza (South Africa): **IV International Symposium on Beverage Crops.** Info: Prof. Dr. Olaniyi Fawole, Postharvest & Agroprocesing Research Centre, Department of Botany & Plant Biotechnology, University of Johannesburg, APK Campus, South Africa. E-mail: olaniyif@uj.ac.za Web: https://bevcrops2026sa.carlamani.com/ NEW
- April 28-30, 2026, Abu Dhabi (United Arab Emirates): **VIII International Date Palm Conference.** Info: Prof. Dr. Abdelouahhab Zaid, Date Palm Research & Dev. Programme, UAE University, PO Box 81908, Al Ain, United Arab Emirates. Phone: (971)3 7832334, Fax: (971)3 7832472, E-mail: abdelouahhabz@diwan.gov.ae NEW
- May 3-7, 2026, Lleida (Spain): **IX International Symposium on Almonds and Pistachios.** Info: Dr. Xavier Miarnau, IRTA-Fruitcentre, Parc Agrobiotech, Parc de Gardeny, 25003 Lleida, Spain. Phone: (34)675788825, E-mail: xavier.miarnau@irta.cat or Dr. Joaquim Bellvert Rios, Parc de Gardeny, IRTA Fruitcentre, 25003 Lleida Lleida, Spain. Phone: +34669012747, E-mail: joaquim.bellvert@irta.es Web: https://www.almondpistachio2026.com/
- May 17-21, 2026, Athens (Greece): **X Southeastern and Eastern Europe Symposium on Vegetables and Potatoes.** Info: Dr. Dimitrios Savvas, Agricultural University of Athens, Laboratory of Vegetable Production, Iera Odos 75, 11855 Athens, Greece. Phone: (30)2105294510, Fax: (30)2105294504, E-mail: dsavvas@aua.gr or Assist. Prof. Georgia Ntatsi, Agricultural University of Athens, Laboratory of Vegetable Crops, Iera Odos 75, 11855 Athens, Greece. Phone: (30)2015294532, E-mail: ntatsi@aua.gr or Prof. Dr. Nazim Gruda, University of Bonn, INRES Horticultural Sciences, Auf dem Hügel 6, 53121 Bonn, Germany. E-mail: ngruda@uni-bonn.de
- May 18-22, 2026, Lofthus, Ullensvang (Norway): **VIII International Symposium on Postharvest Pathology.** Info: Dr. Jorunn Børve, Norwegian Institute of Bioeconomy Research, Ullensvang Research Center, Lofthus 5781, Norway. E-mail: jorunn.borve@nibio.no Web: https://nibio.pameldingssystem.no/isphpp2026 NEW
- June 7-10, 2026, Monterey, CA (United States of America): **XVIII International Symposium on Processing Tomato - XVI World Processing Tomato Congress.** Info: Dr. Luca Sandei, SSICA, Tomato Department, Viale f.Tanara 31/a, 43121 Parma (PR), Italy. Phone: (39) 0521795257, Fax: (39) 0521771829, E-mail: luca.sandei@ssica.it or Zach Bagley, PO Box 2437, Woodland CA 95776, United States of America. Phone: (1)53-04059469, E-mail: zach@tomatonet.org or Dr. Brenna Aegerter, Univ of California Coop Extn., UCCE San Joaquin County, 2101 E Earhart Ave. Ste 200, Stockton, CA 95206, United States of America. E-mail: bjaegerter@ucanr.edu E-mail symposium: symposium@worldtomatocongress.com Web: https://www.wptc.to/wp/wptc-congress-2026/ NEW
- June 22-24, 2026, Iksan, Jeonbuk (Korea (Republic of)): **XVI International Asparagus Symposium.** Info: Prof. Dr. Yang Gyu Ku, Department of Horticulture Industry, College of Agriculture and Food Sciences, Wonkwang University, Iksan-city, Korea (Republic of). Phone: (82)638506672, Fax: (82)638507308, E-mail: ygku35@wku.ac.kr or Prof. Dr. Young Yeol Cho, Collage of Applied Life Sciences, Department of Horticultural Science, Jeju National University, Jeju, Korea (Republic of). Phone: (82)647543325, Fax: (82)647254905, E-mail: yycho@jejunu.ac.kr or Prof. Dr. Jong Hyang Bae, Department of Horticulture Industry, College of Agriculture and Food Sciences, Wonkwang University, Iksan-city, Korea (Republic of). Phone: (82)638506671, Fax: (82)638507308, E-mail: bae@wku.ac.kr or Prof. Dr. Young Rog Yeoung, Department of Plant Science, College of Life Science, GangneungWoju National University, Gangwon-Do, Korea (Republic of). Phone: (82)336402356, Fax: (82)336402909, E-mail: yryeoung@gwnu.ac.kr NEW
- August 23-28, 2026, Kyoto (Japan): **XXXII International Horticultural Congress: IHC2026.** Info: Prof. Dr. Ryutaro Tao, Lab. Pomology, Fac. Agric., Kyoto University, Kitashirakawa Oiwake-cho, Sakyo-ku Kyoto 606-8502, Japan. Phone: (81)757536053, Fax: (81)757536497, E-mail: tao.ryutaro.8c@kyoto-u.ac.jp E-mail symposium: ihc2026@convention.co.jp Web: https://www.ihc2026.org/

Symposia at IHC2026:

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Horticultural Genetic Resources and their Usefulness for Breeding.** Info: Dr. Sandra Correia, InnovPlantProtect, Estrada de Gil Vaz, 7350-478 Elvas, Portugal. E-mail: sandra.correia@iplantprotect.pt or Dr. Nobuko Mase, Citrus Research Station, Institute of Fruit, Tree and Tea Science, NARO, 485-6 Okitsunaka-cho, Shimizu, Shizuoka City, Shizuoka 424-0292, Japan. E-mail: mase.nobuko909@naro.go.jp or Dr. Yoichi Kawazu, Inst. of Vegetable & Floriculture Sci. NARO, 360 Ano, Tsu, Mie, Japan. E-mail: ykawazu@affrc.go.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Challenges and Perspectives on Innovative Technologies for Breeding of Horticultural Crops.** Info: Prof. Byoung-Cheorl Kang, Seoul Natl. Univ., San 56-1, Sillim 9-dong, Gwanak-gu, Seoul 151-742, Korea (Republic of). E-mail: bk54@snu.ac.kr or Prof. Isobe Sachiko, University of Tokyo, Bunkyo 1-1-1, Yayoi, Tokyo, 113-8657, Japan. E-mail: sisobe@g.ecc.u-tokyo.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s02/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Innovative Technologies and Production Strategies for Smart Greenhouse.** Info: Prof. In-Bok Lee, Lab.of Aero-Environmental Engineering, College of Agric. and Life Science, Seoul National University, San 56-1, Silim-dong, Gwanak-Gu, Seoul, Korea (Republic of). E-mail: iblee@snu.ac.kr or Dr. Tadahisa Higashide, National Agric. & Food Res. Organization, 3-1-1, Kannondai, Tsukuba, Ibaraki, 305-8519, Japan. E-mail: ton@affrc.go.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s03/

NEW ■ August 23-28, 2026, Kyoto (Japan): **II International Symposium on Advances in Vertical Farming.** Info: Prof. Dr. Qichang Yang, Institute of Urban Agriculture, CAAS, No. 36, Lazidong Street, Shuangliu District, Chengdu, Sichuan, China. E-mail: yangqichang@caas.cn or Prof. Dr. Eiji Goto, Graduate School of Hort.,Chiba University, 648 Matsudo, Matsudo, Chiba 271-8510, Japan. E-mail: goto@faculty.chiba-u.jp or Prof. Dr. Naoya Fukuda, Inst. Life Environ. Sci., T-PIRC, University of Tsukuba, Tennodai 1-1-1, Tsukuba city, Japan. E-mail: fukuda.naoya.ka@u.tsukuba.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s04/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Sustainable Plant Production in Greenhouse Horticulture and Protected Cultivation.** Info: Dr. Silke Hemming, Wageningen University & Research, Business Unit Greenhouse Horticulture, Droevendaalsesteeg 1, 6708 PB Wageningen, Netherlands. E-mail: silke.hemming@wur.nl or Dr. Yasunaga Iwasaki, 2060-1 Kurokawa Asao ward, Kawasaki city 2150035, Meiji University, Faculty of Agriculture, Japan. E-mail: iwasakiy@meiji.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s05/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Modeling and Digital Approaches to Explore the Diversity of Crop Physiology and Management in Field Conditions.** Info: Dr. Evelyne Costes, INRA UMR AGAP, Avenue Agropolie, 34398 Montpellier Cedex 5, France. E-mail: evelyne.costes@inrae.fr or Takayoshi Yamane, 2-1 Fujimoto, Tsukuba 3058605, Japan. E-mail: yamane.takayoshi156@naro.go.jp or Dr. Koji Sugahara, 3-1-1 Kannondai, Tsukuba 3058519, Japan. E-mail: sugahara.koji783@naro.go.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s06/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Developmental and Molecular Responses of Horticultural Plants to Abiotic Stress, including Temperature.** Info: Dr. Erika Varkonyi-Gasic, PFR, Private Bag 92169, Auckland mail Centre, 1142 Auckland, New Zealand. E-mail: erika.varkonyi-gasic@plantandfood.co.nz or Prof. Dr. Nobuhiro Kotoda, Fruit Science lab, Saga University, 1 Honjo-machi, Saga 840-8502, Japan. E-mail: koto@cc.saga-u.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s07/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Advances in Postharvest Biology and Technology of Horticultural Crops.** Info: Assoc. Prof. Kietsuda Luengwilai, Dept. Horticulture, Fac. Agriculture at Kamphang Saen, Kasetsart University, Kamphang Saen campus, Kamphang Saen 73140, Thailand. E-mail: kietsuda.l@ku.ac.th or Assoc. Prof. Eriko Yasunaga, 3-5-8 Saiwai-cho, Tokyo University of Agriculture and Technol, Fuchu 183-8509, Japan. E-mail: erikoy@go.tuat.ac.jp or Dr. Yasuo Suzuki, Faculty of Agriculture, Meijo University, Shiogamaguchi 1-501, Tenpaku-ku, Nagoya 468-8502, Japan. E-mail: yasuosuzuki@meijo-u.ac.jp E-mail symposium: p-ihc2026@convention.co.j p Web: https://www.ihc2026.org/symposia/s08/

NEW ■ August 23-28, 2026, Kyoto (Japan): **XI International Symposium on Human Health Effects of Fruits and Vegetables - FAVHEALTH2026.** Info: Prof. Mariusz Piskula, Wadowskiego 15, 10-761 Olsztyn, Poland. E-mail: m.piskula@pan.olsztyn.pl or Prof. Kaeko Murota, 1060 Nisikawatsu-cho, Matsue 690-8504, Shimane, Japan. E-mail: murota@life.shimane-u.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s09/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Medicinal, Aromatic Plants and Natural Colorants – incl. ISSBT2026.** Info: Prof. Mahmoud A. Sharafeldin, National Research Centre, Egypt. E-mail: sharafeldin99@yahoo.com or Dr. Po-An Chen, No. 3, Aly. 35, Ln. 191, Jiannan Rd., Pingtung City, Pingtung County 900, Taiwan, 900 Pingtung, Chinese Taipei. E-mail: chenpoan@mail.atri.org.tw or Assist. Prof. Ryosuke Munakata, Lab. Plant Gene Expression, RISH, Kyoto Uni, Uji, Japan. E-mail: munakata.ryosuke.3z@kyoto-u.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s10/

NEW ■ August 23-28, 2026, Kyoto (Japan): **XVII International People Plant Symposium and IV International Symposium on Horticultural Therapies (HortTherapy2026).** Info: Prof. Dr. Sin-Ae Park, Konkuk University, 225 Life and Environment Science building, 05029 Seoul, Korea (Republic of). E-mail: sapark42@konkuk.ac.kr or Takuya Kenmochi, Awaji Campus, University of Hyogo, 954-2 Nojimatokiwa, Awaji 656-1726, Japan. E-mail: takuya_kenmochi@awaji.ac.jp or Assoc. Prof. Fumie Tazaki, Awaji campus, University of Hyogo, 954-2 Nojimatokiwa, Awaji 656-1726, Japan. E-mail: taz23a@sky.plala.or.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s11/

NEW ■ August 23-28, 2026, Kyoto (Japan): **II International Symposium on Urban Horticulture for Sustainable Food Security: Toward Food-Secure Cities (UrbanFood2026).** Info: Dr. Giuseppina Pennisi, University of Bologna, Viale Giuseppe Fanin 44, 40127 Bologna, Italy. E-mail: giuseppina.pennisi@unibo.it or Mr. Masakazu Yamada, 1-1 Owashi, Tukuba 3058686, Japan. E-mail: myama42@affrc.go.jp or Dr. Sayuri Teramoto, University of the Ryukyus, 1 Senbaru, Nishihara, Okinawa, 9030213, Japan. E-mail: teramoto@cs.u-ryukyu.ac.jp or Yasuhiko Koike, Tokyo University of Agriculture, 1737 Funako Atsugi, Kanagawa 243-0034, Japan. Phone: (81)462706527, E-mail: koike@nodai.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s12/

NEW ■ August 23-28, 2026, Kyoto (Japan): **IV International Symposium on Greener Cities: Re-imagining Urban Landscapes (GreenCities2026).** Info: Prof. Dr. Luis Pérez-Urrestarazu, Agro-Forestry Engineering, Universidad de Sevilla, ETSIA Ctra. Utrera km.1, 41013 Sevilla, Spain. E-mail: lperez@us.es or Assoc. Prof. Tomoko Takeuchi, 1-23-6-401, Sendagi, Bunkyo-ku, Tokyo 113-0022, Japan. E-mail: tomoko_takeuchi@chiba-u.jp or Assoc. Prof. Shoko Hikosaka, 648 Matsudo, Matsudo city 271-8510, Japan. E-mail: s-hikosaka@faculty.chiba-u.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s13/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Evaluating the Impact and Scaling of Innovations for Sustainable Horticulture.** Info: Dr. Melinda Knuth, 2721 Sullivan Drive, Campus Box 7212, Raleigh North Carolina 27695, United States of America. E-mail: mjknuth@ncsu.edu or Prof. Dr. Shusuke Matsushita, Kitashirakawa Oiwake-cho, Sakyo-ku, Kyoto, Japan. E-mail: matsushita.shusuke.7z@kyoto-u.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s14/

NEW ■ August 23-28, 2026, Kyoto (Japan): **II International Symposium on Agroecology and System Approach for Sustainable and Resilient Horticultural Production.** Info: Prof. Dr. Maria Claudia Dussi, Universidad Nacional del Comahue, Facultad de Ciencias Agrarias, CC 85 (8303) Cinco Saltos, Rio Negro-Patagonia, Argentina. E-mail: mcdussi@yahoo.com or Prof. Rachel Bezner Kerr, 262 Warren Hall, Department of Global Development, Cornell University, Ithaca, NY 14853, United States of America. E-mail: rbeznerkerr@cornell.edu or Prof. Dr. Rie Miyaura, 1-1-1, Sakuragaoka, Setagaya 156-8502, Japan. E-mail: mia@nodai.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s15/

NEW ■ August 23-28, 2026, Kyoto (Japan): **II International Symposium on Innovations in Ornamentals: From Breeding to Market.** Info: Prof. Junping Gao, China Agricultural University, Beijing, 100193, China. E-mail: gaojp@cau.edu.cn or Dr. Kenichi Shibuya, 2-1 Fujimoto, Tsukuba 305-0852, Japan. E-mail: shibuya.kenichi573@naro.go.jp or Dr. Masafumi Yagi, Ins. of Vegetable and Floriculture Science, NARO, 2-1 Fujimoto, Tsukuba, Japan. E-mail: yagi.masafumi967@naro.go.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s16/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Innovative Use of Diverse Traits (Color, Shape and Fragrance) in Ornamentals.** Info: Prof. Dr. Zhanao Deng, University of Florida, IFAS, Gulf Coast Research and Education Center, 14625 County Road 672, Wimauma, FL 33598, United States of America. E-mail: zdeng@ufl.edu or Dr. Ayumi Deguchi, 648, Matsudo, Matsudo-shi 271-8510, Japan. E-mail: deguchia@chiba-u.jp or Prof. Dr. Munetaka Hosokawa, Nakamachi, Nara-shi, Nara 631-0052, Japan. E-mail: mune@nara.kindai.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s17/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Vegetable Breeding for Sustainable Field and Greenhouse Production through Modern Selection Techniques and Molecular Tools (BreedVegs2026).** Info: Prof. Dr. Yuling Bai, WUR, Drovendaalsesteeg 1, 6700 AJ Wageningen, Netherlands. E-mail: bai.yuling@wur.nl or Dr. Pasquale Tripodi, Via Cavalleggeri 25, 84098 Pontecagnano Faiano, Italy. E-mail: pasquale.tripodi@crea.gov.it or Prof. Dr. Masayoshi Shigyo, Faculty of Agriculture, Yamaguchi University, Yoshida 1677-1, Yamaguchi 753-8515, Japan. E-mail: shigyo@yamaguchi-u.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s18/

■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Diversification of Vegetable Production and New Growing Techniques for Sustainable Farming Systems (GreenVegs2026).** Info: Assoc. Prof. Francesco Di Gioia, The Pennsylvania State University, Shortlidge Road, Tyson Building 207, University Park PA 16802, United States of America. E-mail: fxd92@psu.edu or Dr. Megumu Takahashi, 3-1-1, Kannondai, Tsukuba 3058519, Japan. E-mail: takahashi.megumu000@naro.go.jp or Dr. Fumio Sato, Kannondai 3-1-1, Tukuba 3058519, Japan. E-mail: sato.fumio525@naro.go.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s19/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Berries: New Tools for Crop Improvement.** Info: Assoc. Prof. Lisa DeVetter, WSU, 16650 Washington 536, Mount Vernon, WA 98273, United States of America. E-mail: lisa.devetter@wsu.edu or Dr. Sarah Pilkington, 120 Mt Albert Road, Mt Albert, 1025 Auckland, New Zealand. E-mail: sarah.pilkington@plantandfood.co.nz or Dr. Takeshi Kurokura, 350 Mine, Faculty of Agriculture, University of Utsunomiya, Utsunomiya 321-8505, Japan. E-mail: kurokura@cc.utsunomiya-u.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s20/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Advances in Grapevine Genetics and Physiology: Innovation and Adaptation for the Next-Generation Resilient Viticulture.** Info: Prof. Giovanni Battista Tornielli, DAFNAE, University of Padova, Viale dell'Università, 16, 35020 Legnaro (PD), Italy. E-mail: giovannibattista.tornielli@unipd.it or Prof. Dr. Jinggui Fang, No. 666, Binjiang Avenue, Jiangbei New Area, Nanjing, Jiangsu, P.R.China, 211800, China. E-mail: fanggg@njau.edu.cn or Dr. Akifumi Azuma, Institute of Fruit Tree and Tea Science, NARO, Akitsu Mitsu 301-2, Higashi-Hiroshima Hiroshima 739-2494, Japan. E-mail: azuma.akifumi128@naro.go.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s21/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Sustainable Production Systems in Temperate Tree Crops.** Info: Prof. George Manganaris, Anexartisias 57, PAREAS Building, P.O. Box 50329, 3603 Lemesos, Cyprus. E-mail: george.manganaris@cut.ac.cy or Hideki Murayama, Faculty of Agriculture, Yamagata University, 1-23 Wakabamachi Tsuruoka, Yamagata 997-8555, Japan. E-mail: mhideki@tds1.tr.yamagata-u.ac.jp or Prof. Dr. Takuya Tetsumura, Department of Agriculture, Faculty of Agriculture, University of Miyazaki, 889-2192, Japan. E-mail: tetsumur@cc.miyazaki-u.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s22/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Application of Genetics and Breeding Approaches to Improve Temperate Tree Crops.** Info: Prof. Dr. Fabrizio Costa, Via Mach 1, 38098 San Michele all"Adige, Trento, Italy. E-mail: fabrizio.costa@unitn.it or Dr. Atsushi Kono, 2-1, Fujimoto, Tsukuba, Ibaraki 305-8605, Japan. E-mail: kono.atsushi993@naro.go.jp or Dr. Miyuki Kunihisa, Fujimoto 2-1, Tsukuba, Japan. E-mail: kunihisa.miyuki700@naro.go.jp or Dr. Norio Takada, Institute of FruitTree and TeaScience, NARO, Fujimoto 1-2, Tsukuba, Ibaraki 305-8606, Japan. Phone: (81)298386464, E-mail: takada.norio513@naro.go.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s23/

NEW ■ August 23-28, 2026, Kyoto (Japan): **International Symposium on Bridging Science and Practice for Tropical and Subtropical Fruits and Nuts.** Info: Prof. Dr. Zora Singh, Edith Cowan University, Horticulture, School of Science, 270 Joondalup Drive, Joondalup 6027, Western Australia, Australia. E-mail:

z.singh@ecu.edu.au or Assoc. Prof. Shu-Yen Lin, 1, 4th sec., Roosevelt Road, Da-an district, Dept. of Horticulture, National Taiwan University, Chinese Taipei. E-mail: sylin@ntu.edu.tw or Dr. Naoko Kozai, Kagoshima University, Korimoto 1-21-24, Kagoshima, Kagoshima 890-0065, Japan. E-mail: nkozai@agri.kagoshima-u.ac.jp or Dr. Shingo Goto, 2-1 Fujimoto, Tsukuba, Ibaraki 305-8605, Japan. Phone: (81)29-838-6474, E-mail: goto.shingo184@naro.go.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/s24/

NEW

NEW

- August 23-28, 2026, Kyoto (Japan): **XIII International Symposium on Banana: Exploring Banana Diversity for Improved Livelihoods.** Info: Dr. Sebastien Carpentier, Bioversity International, Willem de Croylaan 42 - bus 2455, 3001 Heverlee, Belgium. E-mail: sebastien.carpentier@biw.kuleuven.be or Assoc. Prof. Yasuaki Sato, Global Humanities and Social Sciences, Nagasaki University, 1-14 Bunkyo, Nagasaki 852-8521, Japan. E-mail: y-sato@nagasaki-u.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s25/

NEW

NEW

- August 23-28, 2026, Kyoto (Japan): **International Symposium on Recent Advances in Horticulture in East Asia, Southeast Asia and the Pacific.** Info: Prof. Dr. Roderick A. Drew, Griffith Sciences, Griffith University, Kessels Road, Nathan, QLD 4111, Australia. E-mail: roderick.drew646@gmail.com or Prof. Dr. Zhen-Hai Han, Institute for Horticultural Plants, China Agricultural University, No. 2 Yuanmingyuanxilu, 100193 Beijing, China. E-mail: rschan@cau.edu.cn or Dr. Sota Koeda, Lab. Horticultural Science, Kindai University, 3327-204 Nara 631-8505, Japan. E-mail: 818sota@nara.kindai.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s26/

NEW

- August 23-28, 2026, Kyoto (Japan): **International Symposium on Innovation in Horticulture, via Fundamental Science on Reproductive Biology of Annuals and Perennials.** Info: Prof. Avi Sadka, ARO, The Volcani Center, Department of Fruit Trees Sciences, 68 HaMaccabim Rd., P.O. Box 15159, Rishon LeZion 7528809, Israel. E-mail: vhasadka@volcani.agri.gov.il or Prof. Hisayo Yamane, Laboratory of Pomology, Graduate School of Agriculture, Kyoto University, Kyoto 606-8502, Japan. E-mail: yamane.hisayo.6n@kyoto-u.ac.jp or Prof. Dr. Masahiro Kanaoka, Prefectural University of Hiroshima, Nanatsuka5562 Shobara 7270023, Japan. E-mail: mkanaoka@pu-hiroshima.ac.jp E-mail symposium: p-ihc2026@convention.co.jp Web: https://www.ihc2026.org/symposia/s27/

- September 25-28, 2026, Antalya (Turkey): **IV International Symposium on Fruit Culture along Silk Road Countries**. Info: Prof. Dr. Sezai Ercisli, Ataturk University Agricultural Faculty, Department of Horticulture, 25240 Erzurum, Turkey. Phone: (90) 442-2312599, Fax: (90) 442 2360958, E-mail: sercisli@gmail.com
- November 18-20, 2026, Bastia, Corsica (France): **V International Symposium on Citrus Biotechnology**. Info: Dr. Francois Luro, AGAP Corse Equipe SEAPAG, station INRAE, 20230 San Giuliano, France. Phone: (33)495595946, E-mail: francois.luro@inrae.fr

NEW

- November 18-20, 2026, Kathmandu (Nepal): **V International Orchid Symposium**. Info: Prof. Dr. Bijaya Pant, Central Department of Botany, Tribhuvan University, Kathmandu Nepal, Research Director, Annapurna Research Center, Kathmandu, Nepal. Phone: (977)9801203357, E-mail: b.pant@cdbtu.edu.np E-mail symposium: orchidsymposiumnepal@gmail.com Web: https://www.annapurnaresearch.org/ internationalorchidsymposium

NEW

- November 23-27, 2026, Montagu, Western Cape (South Africa): **XIII International Workshop on Sap Flow**. Info: Dr. Phumudzo Charle Tharaga, office 1.220 Agriculture Building, University of the Free State, 205 Nelson Mandela Drive, 9300 FS Bloemfontein, South Africa. Phone: (27)514012882, E-mail: tharagac@arc.agric.za or Assoc. Prof. Robert Skelton, 1 Jan Smuts Avenue, Braamfontein, 2000 Gauteng Johannesburg, South Africa. Phone: (27)711109778, E-mail: rob.skelton@wits.ac.za or Mr. Muthianzhele Ravuluma, 20 Lelie st, Idasvallei, 7609 Western Cape, Stellenbosch, South Africa. E-mail: ravulumam@arc.agric.za

NEW

- November 24-27, 2026, Udon Thani province (Thailand): **International Symposium on Utilization and Cultivation of Medicinal and Aromatic Plants & VII International Symposium on Plant Genetic Resources and Breeding Research on Medicinal and Aromatic Plants**. Info: Mr. Rapibhat Chandarasrivongs, Department of Agriculture, 50 Phaholyothin Rd., Chatuchak 10900, Thailand. Phone: (66)25790583, E-mail: interudonexpo2026@gmail.com

Year 2027

NEW

- January 19-22, 2027, Udon Thani province (Thailand): **IV International Symposium on Tropical and Subtropical Ornamentals**. Info: Mr. Rapibhat Chandarasrivongs, Department of Agriculture, 50 Phaholyothin Rd., Chatuchak 10900, Thailand. Phone: (66)25790583, E-mail: interudonexpo2026@gmail.com
- January 31 - February 4, 2027, Ghent (Belgium): **VertiFarm2027: IV International Workshop on Vertical Farming**. Info: Dr. Bruno Gobin, Schaessestraat 18, 9070 Destelbergen, Belgium. Phone: (32)93539480, Fax: (32)3539495, E-mail: bruno.gobin@viaverda.be or Annelies Christiaens, Viaverda vzw, Schaessestraat 18, 9070 Destelbergen, Belgium. E-mail: annelies.christiaens@viaverda.be
- June 6-10, 2027, Wageningen (Netherlands): **GreenSys2027**. Info: Dr. Silke Hemming, Wageningen University & Research, Business Unit Greenhouse Horticulture, Droevendaalsesteeg 1, 6708 PB Wageningen, Netherlands. Phone: (31)317 4 86921, E-mail: silke.hemming@wur.nl or Prof. Dr. Leo F. M. Marcelis, Wageningen University, Horticulture & Product Physiology, Droevendaalsesteeg 1, 6708 PB Wageningen, Netherlands. Phone: (31)317485675, E-mail: leo.marcelis@wur.nl or Dr. Ep Heuvelink, Greenhouse Crop Physiology and Modelling, Wageningen University, Droevendaalsesteeg 1, 6708 PB Wageningen, Netherlands. Phone: (31)317483679, Fax: (31)317484709, E-mail: ep.heuvelink@wur.nl
- June 7-10, 2027, Coimbra (Portugal): **XXVIII International EUCARPIA Symposium Section Ornamentals - From Biology to Bioeconomy**. Info: Prof. Dr. Jorge Canhoto, Department of Life Sciences, University of Coimbra, Calçada Martim de Freitas, 3000-456 Coimbra, Portugal. Phone: (351)917859860, E-mail: jorgecan@ci.uc.pt
- June 14-18, 2027, Alnarp (Sweden): **XVII EUCARPIA Symposium on Fruit Breeding and Genetics**. Info: Assoc. Prof. Larisa Gustavsson, Swedish University of Agricultural Sciences, Department of Plant Breeding, Alnarp, Box 190, 234 22 Lomma, Sweden, Sweden. Phone: (46)402858114, E-mail: larisa.gustavsson@slu.se or Prof. Dr. Henryk Flachowsky, Pillnitzer Platz 3a, 01326 Dresden, Germany. E-mail: henryk.flachowsky@julius-kuehn.de
- June 16-18, 2027, Torino (Italy): **VIII International Chestnut Symposium**. Info: Prof. Dr. Gabriele Loris Beccaro, Università degli Studi di Torino, Dept. Agric., Forestry & Food Sci., Largo Paolo Braccini 2, 10095 Grugliasco, Torino, Italy. Phone: (39)0116708802, Fax: (39)116708658, E-mail: gabriele.beccaro@unito.it or Prof. Roberto Botta, DISAFA - University of Torino, Largo Paolo Braccini 2, 10095 Grugliasco (TO), Italy. Phone: (39)0116708800, Fax: (39)0116708658, E-mail: roberto.botta@unito.it
- July 11-16, 2027, Pergine Valsugana (Italy): **XIV International Rubus and Ribes Symposium**. Info: Gianluca Savini, Sant'Orsola Sca., Via dell'aeroporto 14, 38057 Località Cirè di Pergine Valsugana TN, Italy. E-mail: gianluca.savini@santorsola.com or Lara

Giongo, Fondazione Edmund Mach via E. Mach,1, San Michele aA, Italy. E-mail: laraxgiongo@gmail.com E-mail symposium: ruri@santorsola.com Web: https://ruri.santorsola.com/

- July 19-22, 2027, Chiang Mai (Thailand): **VIII International Symposium on Lychee, Longan and Other Sapindaceae Fruits**. Info: Assoc. Prof. Theeranuch Jaroenkit, Dept. Of Horticulture, Faculty of Agric. Production, Maejo University, San Sai, Chiang Mai 50290, Thailand. Phone: (66)53873605, E-mail: theeranu@gmail.com or Assoc. Prof. Chiti Sritontip, Agricultural Technology Research Institute, 202 Moo 17, Tambon Pichai, Amphur Muang, Lampang, 52000, Thailand. Phone: (66) 54-342553, Fax: (66) 54-342550, E-mail: chiti@rmutl.ac.th
- August 31 - September 3, 2027, Banja Luka (Bosnia and Herzegovina): **VI Balkan Symposium on Fruit Production Systems**. Info: Prof. Dr. Miljan Cvetkovic, Vojislava Djede Kecmanovica 1A, 78000 Banja Luka, Bosnia and Herzegovina. Phone: (387) 51 330 938, E-mail: miljan.cvetkovic@agro.unibl.org or Prof. Dr. Boris Pasalic, Kosovke djevojke 2, 78000 Banjaluka, Bosnia and Herzegovina. E-mail: boris.pasalic@agro.unibl.org

For updates logon to www.ishs.org/symposia

› Recently published papers in eJHS

eJHS (*European Journal of Horticultural Science*) is the official journal of the International Society for Horticultural Science. eJHS is an open access journal publishing significant plant science discoveries and new or modified methodologies and technologies with a broad international and cross-disciplinary interest in the scope of global horticulture. The journal scope covers both applied and fundamental aspects of the entire food value chain, including breeding, production, processing, trading and retailing of horticultural crops and commodities grown in temperate, Mediterranean, tropical and subtropical climates. Additional information can be found at **www.ishs.org/ejhs**

Jelena Davidović Gidas, Svjetlana Ze ljković, Nikolina Đekić, and Gordana Đurić (2025). LED lights and plant growth regulators enhance the *in vitro* mass propagation of rosemary (*Rosmarinus officinalis* L.). https://doi.org/10.1079/ejhs.2025.0008

Xinyu Wang, Changjiang Liu, Nan Jia, Yonggang Yin, Bin Han, Yan Sun, Shuli Han, Yong Guo, and Minmin Li (2025). Rootstock-mediated effects on vine performance and quality composition of 'Miguang' under protected cultivation in northern China. https://doi.org/10.1079/ejhs.2025.0007

Zhen-Cheng Han, Yi Yang, Hou-Xi Chen, Chong Luo, and Wei-Jie Li (2025). Calcium significantly improves the fruit quality of red-flesh 'Hongyang' kiwifruit. https://doi.org/10.1079/ejhs.2025.0006

Panhong Zou, Yunying Xiao, Yang Wang, Jinrong Zhang, Qian Deng, Zhiyu Li, Lijin Lin, and Huashan Lian (2025). Algal biostimulant enhances biomass and nutrient uptake in peach seedlings. https://doi.org/10.1079/ejhs.2025.0005

Abayneh Melke Woldegebriel (2025). Canopy management improves better orchard light penetration, optimum tree growth, and fruit quality of apple (*Malus domestica* Borkh.) trees grown in mild winter tropical condition. https://doi.org/10.1079/ejhs.2025.0004

Prakash Chandra Tripathi, Anuradha Sane, Karunakaran Ganesan, Sankar Vadivel, Prakash Kumar, Kanupriya Chaturvedi, and Ruchitha Thimmarayappa (2025). Characterization of jamun (*Syzygium cumini* Skeels) accessions for economic traits based on multivariate analysis. https://doi.org/10.1079/ejhs.2025.0003

Zhuo Min, Liang Zhao, Lu Jiang, Xinye Wang, Qing Liu, and Yang Zhang (2025). Effects of strigolactone treatment on the components, quality and antioxidant activities of blueberries. https://doi.org/10.1079/ejhs.2025.0002

Jingsong Huang, Yixiang Zhang, and Jun Guo (2025). Research on lignification of post-harvested bamboo shoots by metabolomics technology. https://doi.org/10.1079/ejhs.2025.0001

› Available issues of *Acta Horticulturae*

Available numbers of *Acta Horticulturae* (print). In addition any *Acta Horticulturae* title is also available in the electronic **e-Acta Horticulturae** format for online access or on USB-drive. To order *Acta Horticulturae* or for more information on price and availability, including tables of content, please check out the 'publications' page at **www.ishs.org** or go straight to **www.actahort.org**

Acta Number	Acta Title	Price (EUR)
1428	IV International Symposium on Organic Greenhouse Horticulture	56
1427	IV International Organic Fruit Symposium and II International Organic Vegetable Symposium	67
1426	International Symposium on New Technologies for Sustainable Greenhouse Systems: GreenSys2023	126
1425	International Symposium on Models for Plant Growth, Environments, Farm Management in Orchards and Protected Cultivation - HorchiModel2023	109
1424	XI International Symposium on Artichoke, Cardoon and Their Wild Relatives	70
1423	X International Symposium on Light in Horticulture	91
1422	V All Africa Horticultural Congress - AAHC2024	116
1421	IV International Symposium on Plant Cryopreservation	59
1420	IX International Symposium on Walnut and Pecan	91
1419	XII International Workshop on Sap Flow	58
1418	EHC2024: International Symposium on Viticulture and Winemaking between Tradition and Innovation	99
1417	EHC2024: International Symposium on Ornamental Horticulture for the Service of Society	79
1416	EHC2024: International Symposium on Sustainable Vegetable Production from Seed to Health Booster Sources	131
1415	XIII International Mango Symposium	85
1414	IV International Orchid Symposium	57
1413	I International Symposium on Plant Propagation, Nursery Organization and Management for the Production of Certified Fruit Trees	70
1412	XVI EUCARPIA Symposium on Fruit Breeding and Genetics	104
1411	VII International Symposium on Cucurbits	91
1410	X International Symposium on Soil and Substrate Disinfestation	57
1409	X International Symposium on Irrigation of Horticultural Crops	108
1408	IX International Cherry Symposium	121
1407	XXXI International Horticultural Congress (IHC2022): IX International Symposium on Human Health Effects of Fruits and Vegetables - FAVHEALTH2022	60
1406	VIII International Symposium on Almonds and Pistachios	110
1405	VII International Symposium on Fig	69
1404	IV Asian Horticultural Congress - AHC2023	307
1403	XIV International Pear Symposium	82
1402	X International Pineapple Symposium	57
1401	III International Symposium on Fruit Culture along Silk Road Countries	76
1400	VII International Chestnut Symposium	92
1399	XIV International Citrus Congress	130
1398	VIII International Symposium on Edible Alliums	57
1397	XII International Symposium on Postharvest Quality of Ornamental Plants	35
1396	VII International Conference Postharvest Unlimited	137
1395	II International Symposium on Precision Management of Orchards and Vineyards	105
1394	III International Symposium on Moringa	52
1393	III International Symposium on Carrot and Other Apiaceae	86
1392	XV International Symposium on Virus Diseases of Ornamental Plants	51
1391	IX South-Eastern Europe Symposium on Vegetables and Potatoes	172
1390	XI International Symposium on Grapevine Physiology and Biotechnology	86
1389	I International Symposium on Growing Media, Compost Utilization and Substrate Analysis for Soilless Cultivation	102
1388	XIII International Rubus and Ribes Symposium	101
1387	III International Symposium on Beverage Crops	85
1386	XIII International Controlled and Modified Atmosphere Research Conference - CAMA2021	95
1385	XIII International Conference on Grapevine Breeding, Genetics and Management	64
1384	XXXI International Horticultural Congress (IHC2022): International Symposium on Conservation and Sustainable Use of Horticultural Genetic Resources	119
1383	XXVII International EUCARPIA Symposium Section Ornamentals: From Nature to Culture - Breeding Ornamentals for Sustainability	90
1382	VII International Symposium on Applications of Modelling as an Innovative Technology in the Horticultural Supply Chain - Model-IT 2023	68
1381	XXXI International Horticultural Congress (IHC2022): International Symposium on Advances in Berry Crops	94
1380	XXXI International Horticultural Congress (IHC2022): International Symposium on Value Adding and Innovation Management in the Horticultural Sector	62
1379	X International Congress on Hazelnut	123
1378	XXXI International Horticultural Congress (IHC2022): International Symposium on Sustainable Control of Pests and Diseases	101
1377	XXXI International Horticultural Congress (IHC2022): International Symposium on Innovative Technologies and Production Strategies for Sustainable Controlled Environment Horticulture	195
1376	XV International Asparagus Symposium	72
1375	XXXI International Horticultural Congress (IHC2022): International Symposium on Plant Nutrition, Fertilization, Soil Management	101
1374	XXXI International Horticultural Congress (IHC2022): II International Symposium on Greener Cities: Improving Ecosystem Services in a Climate-Changing World (GreenCities2022)	67
1373	XXXI International Horticultural Congress (IHC2022): International Symposium on Water: a Worldwide Challenge for Horticulture!	69
1372	XXXI International Horticultural Congress (IHC2022): International Symposium on Adaptation of Horticultural Plants to Abiotic Stresses	87
1371	VII International Date Palm Conference	116
1370	XXXI International Horticultural Congress (IHC2022): International Symposium on the Vitivinicultural Sector: Which Tools to Face Current Challenges?	62
1369	XXXI International Horticultural Congress (IHC2022): International Symposium on Advances in Vertical Farming	76

For an updated list of all titles (in print or e-Acta Horticulturae format) logon to www.actahort.org