



## **2021 International Symposium on Efficient Production of Value-added Plants (EPVP2021)**

**December 27 to 28, 2021**

### **Efficient·Low-carbon·Innovative·Sharing**

**2021 International Symposium on Efficient Production of Value-added Plants (EPVP2021) as a Global Virtual Meeting** officially launch out with 2021 China Greenhouse Industry Conference. Three parallel sessions for local Chinese participants and a virtual session for overseas participants will be held online from December 27 to 28, 2021. Global celebrities will gather online to focus on the protected horticulture industry, share and discuss frontier crossover technologies, industrialization trends and project cases based on biological light environment, plant factory, greenhouse nutrient solution control, AI application, automatic mechanization and equipment, plant protection and low-carbon ecology. The languages of the conference are English, Chinese and Japanese. Colleagues and enterprises at home and abroad are welcome to actively participate in the conference with three domestic live sub-venues and one global live sub-venue.

### **Conference Organizers**

**Hosted by** China Agricultural University; Japan Plant Factory Association; Chinese Society of Agricultural Engineering; Center for Environment, Health and Field Sciences, Chiba University; Chinese Society of Agricultural Machinery

**Organized by** Mechanization Lab. of National Chinese Herbal Medicine Industry Technology System; Agricultural Machinery Branch of Chinese Society of Agricultural Machinery; Richland Sources

**Supported by** Key Lab. Agricultural Engineering in Structure and Environment in Ministry of Agriculture and Rural Affairs

### **Chairmen**

Dongxian He (China) and Toyoki Kozai (Japan)

### **Conference Schedule (Beijing Time)**

**Dec. 27, 2021 (Monday), 09:30-11:30**

Opening Addresses from Industry Leaders and Invited Guests

2021 Annual Development Report of China's Greenhouse Horticulture Industry

(Academician Tianlai Li (Shenyang Agricultural University, China)  
Carbon Absorption Potential and Carbon Neutrality Pathways of Agricultural Production  
System in China (Prof. Dongxian He, China Agricultural University, China)

**Dec. 27, 2021 (Monday), 13:30-18:00**

Session 1: Light Environmental Physiology

Session 2: Efficient Utilization of Water and Fertilizer in Greenhouses

Session 3: Greenhouse Management and Performance

**Dec. 28, 2021 (Tuesday), 09:30-12:00**

Session 4: LED Plant Factories

Session 5: Efficient Berry Production in Greenhouses

Session 6: Netherlands Horticulture Technology

**Dec. 28, 2021 (Tuesday), 13:30-17:40**

Session 7: Efficient Production of Value-added Plants

Session 8: Mechanization of Greenhouses and Plant Factories

Session 9: Innovation Forum of Greenhouse Equipment and Horticultural Technology

Session 10: Special Global Reports

**Register Online**

The participants are required to register in advance on the Internet. The conference fee is RMB 1000/person (RMB 800/person before register within Dec. 24, 2021) for local Chinese participants. The conference fee is RMB 650 / person (US \$100 / person) is special for overseas participants because of only three global cloud venues open. The login ID and password of the Global Cloud Conference will subsequently provide to participants after payment.

Scan the QR Code **in China** or Visit this URL Address Directly



Register Online: <https://qir.h5.xeknow.com/s/nMDLv>

Scan the QR Code in **Overseas** or Visit this URL Address Directly



**Register Online: <https://lm.ewie.com/live/UTKLEQ>**

## **Conference Contact**

Contact information:

- Fang Ji, Email: [jifang@cau.edu.cn](mailto:jifang@cau.edu.cn)
- Hui Peng, Email: [epvp2021@163.com](mailto:epvp2021@163.com)



## 2021 International Symposium on Efficient Production of Value-added Plants (EPVP2021)

**Keywords:** Efficient·Low-carbon·Innovative·Sharing

### Conference Agenda

<p>Opening Ceremony &amp; Speeches about Industry Development</p> <p>Monday, Dec. 27, 09:30-11:30</p> <p>Moderator: Mr. Zhi Li, General Manager of RICHLAND SOURCES, China</p>	
09:30-10:00	Opening Addresses from Industry Leaders and Invited Guests
10:00-10:40	<p><b>SS-01</b></p> <p>2021 Annual Development Report of China's Greenhouse Horticulture Industry</p> <p>Academician Tianlai Li (Shenyang Agricultural University, China)</p>
10:50-11:30	<p><b>SS-02</b></p> <p>Carbon Absorption Potential and Carbon Neutrality Pathways of Agricultural Production System in China</p> <p>Prof. Dongxian He (China Agricultural University, China)</p>
<p style="color: red;"><b>SE Session 1: Light Environmental Physiology</b></p> <p style="color: red;">Monday, Dec. 27, 13:30-17:50</p> <p>Moderator: Prof. <b>Dongxian He</b>, China Agricultural University, China</p>	
13:30-14:00	<p><b>SE01-01</b> Function of Plant Light Signaling and Its Application in Agriculture</p> <p>Academician <b>Jingquan Yu</b> (Zhejiang University, China)</p>

14:00-14:30	<p><b>SE01-02</b>  Light Use Efficiency in Controlled Environment Agriculture: From Biophysics to System Performance  Prof. <b>Marc van Iersel</b> (The University of Georgia, USA)</p>
14:30-15:00	<p><b>SE01-03</b>  Light: An Important Factor Influencing Plants' Growth and Development  Researcher <b>Chunhong Yang</b> (Institute of Botany, Chinese Academy of Sciences, China)</p>
15:00-15:30	<p><b>SE01-04</b>  Study on UV-A and Far-red Lights Regulating Growth and Quality of Vegetable Crops  Prof. <b>Houcheng Liu</b> (South China Agricultural University, China)</p>
15:30-15:50	<p>茶歇 / Coffee Break</p>
15:50-16:20	<p><b>SE01-05</b>  Frequency of Square-wave Pulsed Light from a White LED Module Affects the Light-receiving Posture and Growth of Cos Lettuce Plants  Prof. <b>Kazuhiro Fujiwara</b> (The University of Tokyo, Japan)</p>
16:20-16:50	<p><b>SE01-06</b>  Approach Toward the Optimum Light Source to Grow Ice Queen Lettuce in Plant Factory with Focus on R to FR Ratio  Prof. <b>Wei Fang</b> (National Taiwan University, China)</p>
16:50-17:20	<p><b>SE01-07</b>  Microclimate Control to Increase Productivity and Nutritional Quality of Leafy Vegetables in a Cost-effective Manner  Assoc. Prof. <b>Jie He</b> (Nanyang Technological University, Singapore)</p>
17:20-17:35	<p><b>SE01-08</b>  Using Light-emitting Diodes for Ornamental Plant Propagation in Controlled-environments  Mr. <b>Devdutt Kamath</b> (University of Guelph, Canada)</p>
17:35-17:50	<p><b>SE01-09</b>  UV-A Light Induces Medicinal Components Accumulation of Hydroponic <i>Hypericum perforatum</i> L.  Dr. <b>Wei Gao</b> (China Agricultural University, China)</p>
<p><b>SE Session 2: Efficient Utilization of Water and Fertilizer in Greenhouses</b></p> <p><b>Monday, Dec. 27, 13:30-17:30</b></p> <p>Moderator: Dr. <b>Jianfeng Zheng</b>, China Agricultural University, China</p>	

13:30-14:00	<p><b>SE02-01</b>  Future Potential of New Hydroponic System for Leafy Vegetables in Greenhouse / Plant Factory Aiming at Zero Waste of Nutrient Solution with No-circulation  Prof. <b>Toru Maruo</b> (Japan Plant Factory Association, Japan)</p>
14:00-14:30	<p><b>SE02-02</b>  Floating Hydroponic Cultivation Technology of Controlled Green-leafy Vegetables Production System  Assoc. Researcher <b>Chenghao Zhang</b> (Zhejiang Academy of Agricultural Sciences, China)</p>
14:30-15:00	<p><b>SE02-03</b> Production of Low Potassium Tomato Fruit in Hydroponics for Dialysis Patients  Assoc. Prof. <b>Satoru Tsukagoshi</b> (Chiba University, Japan)</p>
15:00-15:30	<p><b>SE02-04</b>  The Limiting Factors for Maximizing the Water and Nutrient Use Efficiency in Commercial Greenhouse Vegetables Production Systems  Senior Researcher <b>Wim Voogt</b> (Wageningen UR, The Netherlands)</p>
15:30-15:50	Coffee Break
15:50-16:20	<p><b>SE02-05</b>  Technical Problems and Suggestions of Water and Fertilizer Control in Greenhouse Crop Efficient Production  Dr. <b>Jianfeng Zheng</b> (China Agricultural University, China)</p>
16:20-16:50	<p><b>SE02-06</b>  Using Distributed Climate Modeling to Simulate the Response of a Greenhouse Ornamental Crop to Water Restriction  Prof. <b>Pierre-Emmanuel Bournet</b> (Agrocampus Ouest, France)</p>
16:50-17:30	<p><b>SE02-07</b>  Market Demand and Technical Points of Medicinal Cannabis Cultivation in Greenhouse  Prof. <b>Dongxian He</b> (China Agricultural University, China)</p>
<p><b>SC Session 3: Greenhouse Management and Performance</b></p> <p><b>Monday, Dec. 27, 13:30-16:40</b></p> <p>Moderator: <b>Xinxu Li</b>, Section Chief/Senior Agronomist, Beijing Agricultural Technology Extension Station,  China</p>	

13:30-13:55	<p><b>SC03-01</b> Development Status and Prospect of Fresh Consumptive Tomato in Beijing <b>Xihong Lei</b>, Deputy Section Chief /Senior Agronomist (Beijing Agricultural Technology Extension Station, China)</p>
13:55-14:20	<p><b>SC03-02</b> Important and Emerging Viruses in Solanaceous Vegetables and Their Prevention and Control Prof. <b>Tao Zhou</b> (China Agricultural University, China)</p>
14:20-14:45	<p><b>SC03-03</b> Application of Artificial Intelligence in Facility Agriculture Dr. <b>Sen Lin</b>, Senior Engineer (National Engineering Research Center for Intelligent Equipment in Agriculture, China)</p>
14:45-15:10	<p><b>SC03-04</b> Management and Performance Sharing of Tomato and Rose Greenhouses in Zhaoxianqufang Modern Agricultural Industrial Park <b>Shanxing Zhao</b>, General Manager Assistant, Chief Engineer (Haoyu Group, Co., Ltd./ Shandong Haoyu Horticulture Technology Co., Ltd., China )</p>
15:10-15:20	Coffee Break
15:20-15:45	<p><b>SC03-05</b> Cases Sharing of Strawberry Efficient Production in Multi-span Greenhouse <b>Shushan Li</b>, Vice General Manager (JingKun (Beijing) Agricultural Science and Technology Co., Ltd., China)</p>
15:45-16:10	<p><b>SC03-06</b> Seedling Raising and Production Advantages of Strawberry in an Altitude of 2300 m in Lijiang, Yunnan Province <b>Xiankun Guo</b>, General Manager and Technology Director (Lijiang Seasons You Berry Growing Co., Ltd., China)</p>
16:10-16:35	<p><b>SC03-07</b> Green Finance Boosts Green Agriculture <b>Huiye Zhu</b>, Vice President (China Investment Association Innovation Investment and Financing Specialized Committee, China)</p>
16:35-16:40	<p><b>SC03-08</b> Concluding Remarks for Session of Greenhouse Management and Performance <b>Xinxu Li</b>, Section Chief/Senior (Agronomist, Beijing Agricultural Technology Extension Station)</p>

## **SE Session 4: LED Plant Factories**

**Tuesday, Dec. 28, 08:30-11:50**

Moderator: Prof. **Dongxian He**, China Agricultural University, China

08:30-09:10	<b>SE04-01</b> Steps toward Sustainable Plant Factories with Artificial Lighting (PFALs) Prof. <b>Toyoki Kozai</b> (Japan Plant Factory Association, Japan)
09:10-09:40	<b>SE04-02</b> The Colourful Life of Plants in Vertical Farms Prof. <b>Leo F. M. Marcelis</b> (Wageningen UR, The Netherlands)
09:40-10:10	<b>SE04-03</b> How to Realize LED Plant Factory for Unmanned and Intelligent Prof. <b>Dongxian He</b> (China Agricultural University, China)
10:10-10:30	Coffee Break
10:30-10:50	<b>SE04-04</b> Business Plan of Large-scale Plant Factory with Artificial Lighting Mr. <b>Baosuo Bai</b> (Future Agro-Tech (Beijing) Co., Ltd, China)
10:50-11:10	<b>SE04-05</b> Industrialization Practice of Panasonic Hydroponic Plant Factory Mr. <b>Jizhou Wang</b> (China Hualu Panasonic AVC Networks Co., Ltd., China)
11:10-11:30	<b>SE04-06</b> Plant Factory Brings Out the Full Potential under the Pandemic Mr. <b>Nagateru Nozawa</b> (Mirai Co., Ltd., Japan)
11:30-11:50	<b>SE04-07</b> Large-scale Commercial Production and Management Technology of Heading Lettuce in Plant Factory Mr. <b>Kiyomasa Miyashita</b> (Noumann Co., Ltd., Japan)

## SE Session 5: Efficient Berry Production in Greenhouses

**Tuesday, Dec. 28, 08:30-12:00**

Moderator: Assoc. Researcher Chuanfei Zhong, Beijing Academy of Agriculture and Forestry Sciences, China

08:30-09:00	<b>SE05-01</b> Strawberry Green Production with Higher Quality and Yield Prof. <b>Hongqing Wang</b> (China Agricultural University, China)
09:00-09:30	<b>SE05-02</b> Discussion on New Trends and Key Technologies of Strawberry Industry in Plateau of China Assoc. Researcher <b>Chuanfei Zhong</b> (Beijing Academy of Agriculture and Forestry Sciences, China)
09:30-10:00	<b>SE05-03</b> Development Trend of Strawberry Varieties and Runner Plant Production in China Senior Agronomist <b>Hong Yu</b> (Hangzhou Academy of Agricultural Sciences, China)
10:00-10:20	Coffee Break
10:20-10:50	<b>SE05-04</b> Current Status of Greenhouse Strawberry Production in North America Prof. <b>Chieri Kubota</b> (Ohio State University, USA)
10:50-11:20	<b>SE05-05</b> Fruit Malformation and Flower Ultrastructural Changes after Short-term Exposure to High or Low Temperature in Strawberry Prof. <b>Changhoo Chun</b> (Seoul National University, Korea)
11:20-11:40	<b>SE05-06</b> Current Status and Prospect of Greenhouse Blueberry Production in China Prof. <b>Yadong Li</b> (Jilin Agricultural University, China)
11:40-12:00	<b>SE05-07</b> Green Prevention and Control of Diseases and Pests in Strawberry Production at Flower and Fruit Stages Assoc. Researcher <b>Jie Ji</b> (Institute of Plant Protection, FAAS, China)

## SC Session 6: Netherlands Horticulture Technology

**Tuesday, Dec. 28, 08:45-12:25**

Moderator: Mr. **Fulco Wijdooge**, General Manager of Ridder Group Asia / PIB

08:45-08:50	<b>SC06-01</b> Opening Speech Master of Ceremony: Mr. <b>Fulco Wijdooge</b> (General Manager Ridder Group Asia / PIB)
08:50-08:55	<b>SC06-02</b> Welcome Speech Introduction By Dr. <b>Ang Li</b> (Agricultural Advisor Consulate General of the Kingdom of the Netherlands in Shanghai)
08:55-09:00	<b>SC06-03</b> Welcome Speech Mr. <b>Wouter Verhey</b> (Agricultural Counsellor of the Kingdom of the Netherlands in Beijing)
09:00-09:05	<b>SC06-04</b> Welcome Speech Mr. <b>Zhi Li</b> (General Manager of Richland Sources)
09:05-09:25	<b>SC06-05</b> NL Protected Agriculture Alliance for Feeding Megacities in China <b>Nick Hong/ Mengyao Pan</b> , Pib Horti Liaison in China (PIB)
09:25-09:55	<b>SC06-06</b> Grow Better Fruits with Less Footprints toward Our Plant <b>Jiao You</b> , Branch Manager (Kubo China)
09:55-10:25	<b>SC06-07</b> Reducing the Ecological Footprint and Adding Value to Benefit People, Planet and Profit <b>Fulco M. Wijdooge</b> , General Manager / Greg Yu, Sales Supervisor (Ridder Group)
10:25-10:55	<b>SC06-08</b> 21 <sup>st</sup> Century Breeding Innovation Huiyi Wei, Hi-Tech Account Manager (BASF-Nunhems Seeds)
10:55-11:25	<b>SC06-09</b> Hx Sino-Dutch Sustainable Agricultural Industrial Park <b>Simon Lin</b> , Asia Regional President (Hx Agriculture Bv)

11:25-11:55	<b>SC06-10</b> Automatic Rock Wool Planting and Seedling Technology <b>Xin Yuan</b> , Sales Manager (Flier Systems B.V.)
11:55-12:15	<b>SC06-11</b> Dutch Horticulture: From Fork to Farm Solution <b>Michael Min</b> , Dgd China Representative (DGD)
12:15-12:25	<b>SC06-12</b> Q&A Time
<p><b>SE Session 7: Efficient Production of Value-added Plants</b></p> <p><b>Tuesday, Dec. 28, 13:30-17:30</b></p> <p>Moderator: Dr. Fang Ji, China Agricultural University, China</p>	
13:30-14:00	<b>SE07-01</b> Salad Rocket ( <i>Eruca sativa</i> ) and Its Potential Application for Anti-diabetes Researcher <b>Zhihao Xu</b> (Zhejiang Academy of Agricultural Sciences, China)
14:00-14:30	<b>SE07-02</b> Efficient Functional Vegetable Production in LED-lit Plant Factory Prof. <b>Keiko Ohashi</b> (Tamagawa University, Japan)
14:30-15:00	<b>SE07-03</b> Optimal Environment Control for Growth and Camptothecin Accumulation of <i>Ophiorrhiza Pumila</i> as a Medicinal Plant in a Plant Factory Assoc. Prof. <b>Shoko Hikosaka</b> (Chiba University, Japan)
15:00-15:30	<b>SE07-04</b> Proposal and Commercial Practice of High-quality <i>Pinellia ternata</i> Production in Greenhouse Assoc. Researcher <b>Jingmao You</b> (Hubei Academy of Agricultural Sciences, China)
15:30-15:50	茶歇 / Coffee Break
15:50-16:20	<b>SE07-05</b> Research on Aromatic Plant and Edible Flower Production in PFAL Dr. <b>Na Lu</b> (Chiba University, Japan)

16:20-16:50	<b>SE07-06</b> Plant-based Recombinant Protein Production under Controlled Environment Assoc. Prof. <b>Ryo Matsuda</b> (The University of Tokyo, Japan)
16:50-17:10	<b>SE07-07</b> Analysis of New Problems in Production of the Large-scale Greenhouse Mr. <b>Kai Zheng</b> (Tiger Leading (Beijing) Agricultural and Technology Co., Ltd., China)
17:10-17:30	<b>SE07-08</b> Effect of LED Light Quality on Strawberry Transplant Production Dr. <b>Fang Ji</b> (China Agricultural University, China)
<p><b>SE Session 8: Mechanization of Greenhouses and Plant Factories</b></p> <p><b>Tuesday, Dec. 28, 13:30-17:30</b></p> <p>Moderator: Prof. Dongxian He, China Agricultural University, China</p>	
13:30-14:00	<b>SE08-01</b> A Strategy to Create Value-added Plants Using Field Phenotyping and Plant Factory Technologies Prof. <b>Masayuki Hirafuji</b> (The University of Tokyo, Japan)
14:00-14:30	<b>SE08-02</b> Promoting the High-quality Development of Agricultural Mechanization with Intelligence and Digitization Prof. <b>Minli Yang</b> (China Agricultural University, China)
14:30-15:00	<b>SE08-03</b> Plant Functional Remote Sensing and Smart Farming Applications Prof. <b>Kenji Omasa</b> (The University of Tokyo, Japan)
15:00-15:30	<b>SE08-04</b> Suitable Automatic Equipment Helps Yield Increase and Production Efficiency in Greenhouse Mr. <b>Xianguo Fang</b> (Shanghai Nongsheng Modern Agricultural Technology Co., Ltd., China)
15:30-15:50	Coffee Break
15:50-16:20	<b>SE08-05</b> Full-process Mechanization and its Commercial Services in Green Onion Production Based on Greenhouse Seedling Dr. <b>Kai Liu</b> (Shandong Wohua Agricultural Science and Technology Co., Ltd., China)

16:20-16:50	<b>SE08-06</b> Agricultural Solution of Robotic System for Greenhouse Production Assoc. Prof. <b>Chunlong Zhang</b> (China Agricultural University, China)
16:50-17:10	<b>SE08-07</b> Exploration and Practice of Vegetable Production Mechanization in Shanghai Researcher <b>Weimin Zhu</b> (Shanghai Academy of Agricultural Sciences, China)
17:10-17:30	<b>SE08-08</b> Research on Energy-saving Solar Greenhouses Based on New Clear Energy Prof. <b>Jianming Li</b> (Northwest A&F University, China)
<p><b>SC Session 9: Innovation Forum of Greenhouse Equipment and Horticultural Technology</b></p> <p><b>Tuesday, Dec. 28, 13:30-16:50</b></p> <p>Moderator: Mr. Zhi Li, General Manager of RICHLAND SOURCES, China</p>	
13:30-13:50	<b>SC09-01</b> Digital Cloud Computing Helps the Sustainable Development of Greenhouse Production <b>Jin Li</b> , Consultant / Senior Engineer of Asian expert center (PRIVA)
13:50-14:10	<b>SC09-02</b> Establishment and Practice of Intelligent Production System in Large Multi-span Glass Greenhouse Prof. <b>Zengchan Zhou</b> , Chief Engineer (Beijing Kingpeng International Hi-tech Corporation, China)
14:10-14:30	<b>SC09-03</b> Solution Sharing of Perfect Climate in Greenhouses <b>Jian Zhou</b> , Greenhouse Industry Manager (Munters)
14:30-14:50	<b>SC09-04</b> Effect of Supplemental Lighting on Growth and Development of Fruit Vegetable in Greenhouse <b>Yao Dong</b> , Senior Product Manager (Lumlux Corp.)
14:50-15:10	<b>SC09-05</b> How Lock Drives You to Be More Successful - Let's "Grow" Quickly <b>Jin Shi</b> , Technical Sales Manager (Lock Drives (Nanjing) Co., Ltd.)

15:10-15:30	<p><b>SC09-06</b>  Situation and Trend of Greenhouses Transmittance of Polyolefin (PO) as Covering Materials  <b>Dagang Zhou</b>, Senior Engineer (Henan Yunong Agricultural Technology Co., Ltd., China)</p>
15:30-15:50	<p><b>SC09-07</b>  Application and Industry Development of Bumblebee Pollination  <b>Hongjiang Wei</b>, Sales Manager in China (Biobest Shouguang Biological Control Co., Ltd.)</p>
15:50-16:10	<p><b>SC09-08</b>  Design and Application of Large Multi-spans Greenhouse of the Netherlands  <b>Lianhai Yu</b>, Technical Director (Flexibell Systems)</p>
16:10-16:30	<p><b>SC09-09</b>  How to Make A Good Combination of Nutrition in Greenhouse Cultivation  <b>Yanqiang Li</b>, Manager of Smart Agriculture Department (Shanghai Winton Ecological Engineering Co., Ltd.)</p>
16:30-16:50	<p><b>SC09-10</b>  How to Choose Irrigation System for Greenhouses  <b>Zhengwei Zhang</b>, Sales Manager/Engineer (Rivulis Irrigation Ltd.)</p>
<p><b>SE Session 10: Special Global Reports</b></p> <p><b>Tuesday, Dec. 28, 13:30-17:40</b></p>	
13:30-14:00	<p><b>VM03-01</b>  A Strategy to Create Value-added Plants Using Field Phenotyping and Plant Factory Technologies  Prof. <b>Masayuki Hirafuji</b> (The University of Tokyo, Japan)</p>
14:00-14:30	<p><b>VM03-02</b>  Efficient Functional Vegetable Production in LED-lit Plant Factory  Prof. <b>Keiko Ohashi</b> (Tamagawa University, Japan)</p>
14:30-15:00	<p><b>VM03-03</b>  Plant Phenotyping for the Growth Analysis of Individual Cotyledon and True Leaves based on Cohort Research in PFALS  Ms. <b>Eri Hayashi</b> (Japan Plant Factory Association, Japan)</p>

15:00-15:30	<b>VM03-04</b> Quantification of UV-B Radiation Interception in 3D Plant Structure and Application to Bioactive Compound Production in Plant Factories Prof. <b>Jung Eek Son</b> (Seoul National University, Korea)
15:30-15:50	Coffee Break
15:50-16:20	<b>VM03-05</b> High-resolution Plant Data for Intelligent Environmental Control in Greenhouse Prof. <b>Kotaro Takayama</b> (Toyohashi University of Technology/ Ehime University, Japan)
16:20-16:50	<b>VM03-06</b> Machine-augmented Plant Phenotyping Techniques for Smart Horticulture Dr. <b>Wei Guo</b> (The University of Tokyo, Japan)
16:50-17:10	<b>VM03-07</b> Industrial Practice of Vegetable and Strawberry Plant Factories in "Okinawa" as Subtropical Outlying Islands Mr. <b>Takeshi Kaga</b> (Okinawa Cellular Agri & Marche Corporation, Japan)
17:10-17:40	<b>VM03-08</b> Facility-based Plant Production Systems for a Material-cycling-oriented Society Prof. <b>Yoshiaki Kitaya</b> (Osaka Prefecture University, Japan)

(Attention: The final convention agenda is subject to the on-site inform)

## Global Virtual Meeting

<b>Global Virtual Meeting 1</b>	
<b>Monday, Dec. 27, 13:30-18:00</b>	
13:30-14:00	<b>VM01-01</b> Function of Plant Light Signaling and Its Application in Agriculture Academician <b>Jingquan Yu</b> (Zhejiang University, China)
14:00-14:30	<b>VM01-02</b> Light Use Efficiency in Controlled Environment Agriculture: From Biophysics to System Performance Prof. <b>Marc van Iersel</b> (The University of Georgia, USA)

14:30-15:00	<b>VM01-03</b> Production of Low Potassium Tomato Fruit in Hydroponics for Dialysis Patients Assoc. Prof. <b>Satoru Tsukagoshi</b> (Chiba University, Japan)
15:00-15:30	<b>VM01-04</b> The Limiting Factors for Maximizing the Water and Nutrient Use Efficiency in Commercial Greenhouse Vegetables Production Systems Senior Researcher <b>Wim Voogt</b> (Wageningen UR, The Netherlands)
15:30-15:50	Coffee Break
15:50-16:20	<b>VM01-05</b> Frequency of Square-wave Pulsed Light from a White LED Module Affects the Light-receiving Posture and Growth of Cos Lettuce Plants Prof. <b>Kazuhiro Fujiwara</b> (University of Tokyo, Japan)
16:20-16:50	<b>VM01-06</b> Approach Toward the Optimum Light Source to Grow Ice Queen Lettuce in Plant Factory with Focus on R to FR Ratio Prof. <b>Wei Fang</b> (National Taiwan University, China)
16:50-17:20	<b>VM01-07</b> Microclimate Control to Increase Productivity and Nutritional Quality of Leafy Vegetables in a Cost-effective Manner Assoc. Prof. <b>Jie He</b> (Nanyang Technological University, Singapore)
17:20-17:35	<b>VM01-08</b> Using Light-emitting Diodes for Ornamental Plant Propagation in Controlled-environments Mr. <b>Devdutt Kamath</b> (University of Guelph, Canada)
17:35-17:50	<b>VM01-09</b> UV-A Light Induces Medicinal Components Accumulation of Hydroponic <i>Hypericum perforatum</i> L. Dr. <b>Wei Gao</b> (China Agricultural University, China)
<p><b>Global Virtual Meeting 2</b></p> <p><b>Tuesday, Dec. 28, 08:30-12:00</b></p>	

08:30-09:10	<b>VM02-01</b> Steps toward Sustainable Plant Factories with Artificial Lighting (PFALs) Prof. <b>Toyoki Kozai</b> (Japan Plant Factory Association, Japan)
09:10-09:40	<b>VM02-02</b> The Colourful Life of Plants in Vertical Farms Prof. <b>Leo F. M. Marcelis</b> (Wageningen UR, The Netherlands)
09:40-10:10	<b>VM02-03</b> How to Realize LED Plant Factory for Unmanned and Intelligent Prof. <b>Dongxian He</b> (China Agricultural University, China)
10:10-10:20	Coffee Break
10:20-10:50	<b>VM02-04</b> Current Status of Greenhouse Strawberry Production in North America Prof. <b>Chieri Kubota</b> (Ohio State University, USA)
10:50-11:20	<b>VM02-05</b> Fruit Malformation and Flower Ultrastructural Changes after Short-term Exposure to High or Low Temperature in Strawberry Prof. <b>Changhoo Chun</b> (Seoul National University, Korea)
11:30-11:50	<b>VM02-06</b> Large-scale Commercial Production and Management Technology of Heading Lettuce in Plant Factory Mr. <b>Kiyomasa Miyashita</b> (Noumann CO., Ltd., Japan)
<b>Global Virtual Meeting 3</b> <b>Tuesday, Dec. 28, 13:30-17:40</b>	
13:30-14:00	<b>VM03-01</b> A Strategy to Create Value-added Plants Using Field Phenotyping and Plant Factory Technologies Prof. <b>Masayuki Hirafuji</b> (The University of Tokyo, Japan)
14:00-14:30	<b>VM03-02</b> Efficient Functional Vegetable Production in LED-lit Plant Factory Prof. <b>Keiko Ohashi</b> (Tamagawa University, Japan)

14:30-15:00	<p><b>VM03-03</b>  Plant Phenotyping for the Growth Analysis of Individual Cotyledon and True Leaves based on Cohort Research in PFALs  Ms. <b>Eri Hayashi</b> (Japan Plant Factory Association, Japan)</p>
15:00-15:30	<p><b>VM03-04</b>  Quantification of UV-B Radiation Interception in 3D Plant Structure and Application to Bioactive Compound Production in Plant Factories  Prof. <b>Jung Eek Son</b> (Seoul National University, Korea)</p>
15:30-15:50	Coffee Break
15:50-16:20	<p><b>VM03-05</b>  High-resolution Plant Data for Intelligent Environmental Control in Greenhouse  Prof. <b>Kotaro Takayama</b> (Toyohashi University of Technology/ Ehime University, Japan)</p>
16:20-16:50	<p><b>VM03-06</b>  Machine-augmented Plant Phenotyping Techniques for Smart Horticulture  Dr. <b>Wei Guo</b> (The University of Tokyo, Japan)</p>
16:50-17:10	<p><b>VM03-07</b>  Industrial practice of vegetable and strawberry plant factories in "Okinawa" as subtropical outlying islands  Mr. <b>Takeshi Kaga</b> (Okinawa Cellular Agri &amp; Marche Corporation, Japan)</p>
17:10-17:40	<p><b>VM03-08</b>  Facility-based Plant Production Systems for a Material-cycling-oriented Society  Prof. <b>Yoshiaki Kitaya</b> (Osaka Prefecture University, Japan)</p>

**(Attention: The final conference agenda is subject to the on-site notification)**