Tentative Program (subject to change)

**Sunday, July 14**

6:00 PM Welcome Reception

**Monday, July 15**

7:00 – 8:00AM Extension Agent Breakfast (invitation only)

8:00 – 8:30AM Symposium Opening
    Welcome by Convener (Frank Louws, NCSU, USA)
    ISHS Presentation (Daniel Leskovar, ISHS Representative & Francisco Pérez-Alfocea, ISHS Vegetable Grafting Working Group Chair)

8:30 – 9:20AM Keynote Lecture
    Grafting to Address Grand Challenges (Francisco Pérez-Alfocea, CEBAS-CSIC, Spain)

9:20 – 9:30AM Break

9:30 – 11:30AM Session 1: Use and Development of Vegetable Grafting

    9:30 – 11:10AM Oral presentations

    S1-1: Recent progress of vegetable grafting in China (Zhilong Bie, China)
    S1-2: Solanaceous vegetable rootstocks in Japan (Hiroshi Matsunaga, Japan)
    S1-3: Vegetable grafting in Thailand (Taweesak Klinkong, Thailand)
    S1-4: Vegetable grafting: Current progress and future perspectives in Pakistan (Yuan Huang, China)**
    S1-5: Development of suitable rootstock for musk melon and standardization of appropriate grafting technology for dry and humid areas of India (Vimal Chawda, India)

    11:10 – 11:30AM Extension summation

11:30AM – 12:30PM Lunch

12:30 – 1:00PM Flash Talks for Poster Session I

1:00 – 1:50PM Poster Session I (see the list of poster presenters)

1:50 – 2:40PM Keynote Lecture
Rootility’s Unique Rootstock Breeding System and the Innovative Applications (Rafael Meissner, Rootility, Israel)

2:40 – 2:50PM Break

2:50 – 4:30PM Concurrent Sessions 2 and 3

<table>
<thead>
<tr>
<th>Session 2: Grafting Effects on Fruit Quality I</th>
<th>Session 3: Transplant Production and Technology I</th>
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</thead>
<tbody>
<tr>
<td>2:50 – 4:10PM: Oral presentations</td>
<td>2:30 – 3:50PM: Oral presentations</td>
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<tr>
<td>S2-1: Advances in watermelon quality through grafting (Penelope Perkins-Veazie, USA)</td>
<td>S3-1: Increasing survival and efficacy of splice-grafted watermelon using sucrose and antitranspirant (Pinki Devi, USA)**</td>
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<td>S2-2: Pumpkin-grafting delays watermelon fruit ripening by altering ABA signaling and other gene networks (Yong Xu, China)</td>
<td>S3-2: Research and application of LED lighting in the healing stage of grafted vegetable seedlings (Athanasios Koukounaras, Greece)</td>
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<td>S2-3: Watermelon fruit quality as affected by rootstock and potassium supply (Yuan Huang, China)**</td>
<td>S3-3: Temperature and light intensity during healing influence survival and plant regrowth of grafted tomato seedlings (Matthew Kleinhenz, USA)</td>
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<td>S2-4: Grafting watermelon onto interspecific hybrid squash combats hollow heart disorder (Marlee Trandel, USA)**</td>
<td>S3-4: Transplant quality and post-transplanting growth of grafted and non-grafted watermelon seedlings as affected by chilling during simulated long-distance transportation (John Ertle, USA)**</td>
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4:10 – 4:30PM Extension summation

4:30 – 4:35PM Break

4:35 – 6:35PM Industry R&D Round-Table Discussion (open for everyone)

Tuesday, July 16

8:00 – 8:10AM Greetings by Convener and VG Working Group Chair

8:10 – 9:00AM Keynote Lecture
Integration of Grafting into Sustainable Crop Production (Roni Cohen, ARO, Israel)

9:00 – 9:10AM Break

9:10 – 10:50AM Session 4: Vegetable Grafting in Different Production and Management Systems

9:10 – 10:30AM Oral presentations

S4-1: The role of grafting for local tomato production in high tunnels (Cary Rivard, USA)
S4-2: Grafting as a tool in organic watermelon production systems utilizing unique cover cropping strategies (Brian Ward, USA)
S4-3: 2018 progress report: an evaluation of grafting for processing tomato production in California's Central Valley (Gene Miyao, USA)
S4-4: Pruning reduces yields in grafted tomatoes planted in the field (Thomas Ingram, USA)**

10:30 – 10:50AM Extension summation

10:50 – 11:20AM Flash Talks for Poster Session II

11:20AM – 12:10PM Poster Session II (see the list of poster presenters)

12:10PM – 1:30PM Lunch & Photo Shooting

1:30 – 2:20PM Keynote Lecture
Application for Overcoming Interfamily Grafting and Grafting Microchip (Michitaka Notaguchi, Nagoya University, Japan)

2:20 – 2:30PM Break

2:30 – 4:10AM Concurrent Sessions 5 and 6

<table>
<thead>
<tr>
<th>Session 5: Grafting Effects on Fruit Quality II</th>
<th>Session 6: Transplant Production and Technology II</th>
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<tbody>
<tr>
<td>S5-1: Frontiers in grafting-quality science</td>
<td>S6-1: Promoted graft healing and quality of</td>
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<td>(Matthew Kleinhenz, USA)</td>
<td>watermelon seedlings by environmental</td>
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<td>manipulation (Byoung Ryong Jeong, Korea)</td>
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<td>S5-2: How grafting affects the quality of</td>
<td>S6-2: Optimizing transplant production of</td>
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<td>tomato fruits (Wei Liu, China)</td>
<td>Citrullus lanatus <code>Fascination</code> and Cucurbita</td>
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<td></td>
<td>maxima x moschata <code>Carnivor</code> for grafting</td>
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<td>using lower light intensity and CO₂ enrichment</td>
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<td>(Brandon Huber, USA)**</td>
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<td>S5-3: Volatile compounds and consumer</td>
<td>S6-3: GRANDES: An online decision support tool</td>
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<td>perceived sensory attributes of tomato fruit</td>
<td>for grafting nurseries (Sara Masoud, USA)**</td>
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<td>as influenced by grafting and production</td>
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<td>environment (Xin Zhao, USA)</td>
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<tr>
<td>S5-4: High tunnel and field production system</td>
<td>S6-4: Developing an economic decision support</td>
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<td>comparison of grafted tomato in Texas' Yield</td>
<td>tool for grower adoption of vegetable</td>
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<td>and quality traits (Daniel Leskovar, USA)</td>
<td>grafting in the United States (Yefan Nian, USA)**</td>
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3:50 – 4:10PM Extension summation

4:30PM Buses Depart for Gala Dinner (tickets optional)
**Wednesday, July 17**

**8:00 – 8:10AM Greetings by Convener and ISHS Representative**

**8:10 – 9:00AM Keynote Lecture**

Vegetable Grafting in Promoting Sustainable Vegetable Production in Developing Countries

(Ravishankar Manickam, World Vegetable Center, Taiwan)

9:00 – 9:10AM Break

**9:10 – 11:10AM Concurrent Sessions 7 and 8**

<table>
<thead>
<tr>
<th>Session 7: Soilborne Disease Management</th>
<th>Session 8: Rootstock and Scion Interaction</th>
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<tbody>
<tr>
<td>S7-1: On-farm research to evaluate efficacy of grafting to manage soilborne pathogens of tomato in North Carolina USA (Frank Louws, USA)</td>
<td>S8-1: Using wild relatives as a source of traits through grafting: genetic distance, heritability and vigor (Sean Fenstemaker, USA)**</td>
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<td>S7-2: Evaluation of eggplant grafted onto commercial Solanaceae rootstocks for resistance to Verticillium dahliae (Abigail Attavar, USA)**</td>
<td>S8-2: Characterizing the impacts of &quot;generative&quot; rootstocks on growth and development of grafted tomato plants (Tian Gong, USA)**</td>
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<td>S7-3: Carolina Strongback: a fusarium wilt and root knot nematode resistant <em>Citrullus amarus</em> rootstock for watermelon production (Patrick Wechter, USA)</td>
<td>S8-3: Investigating the molecular, physiological, and nutritional changes that underlie grafting-induced vigor in tomato (Margaret Frank, USA)</td>
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<td>S7-4: Grafting on resistant rootstocks for managing Phytophthora crown rot of peppers (Chandrasekar Kousik, USA)</td>
<td>S8-4: Effects of interspecific Capsicum grafting combinations on horticultural performance (Andrey Vega-Alfaro, USA)**</td>
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<tr>
<td>S7-5: Identification of potential rootstock for tomato grafting from bacterial wilt screening trial in NC (Dilip Panthee, USA)</td>
<td>S8-5: Influence of grafting and pruning on <em>Solanum lycopersicum</em> L. cvs. Anahu and Rutgers on plant biomass partitioning in the presence and absence of <em>Meloidogyne incognita</em> (Nematoda) (George Bird, USA)</td>
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10:50 – 11:10AM Extension summation

11:10 – 11:20AM Break

**11:20AM – 12:10PM ISHS Business Meeting (open for everyone)**
11:20AM – 12:10PM Extension Agent Wrap-up (*invitation only*)

12:10 – 1:10PM Lunch

1:10 – 3:30PM Session 9: Addressing Abiotic and Biotic Factors in Grafted Vegetable Production

1:10 – 3:10PM: Oral presentations

S9-1: Prospecting Solanum rootstock biodiversity for improving nutrient use efficiency in tomato (Cristina Martínez Andújar, Spain)
S9-2: Mechanism of increasing salt resistance of cucumber by grafting onto salt tolerant rootstock pumpkin (Zhilong Bie, China)
S9-3: Mechanisms of tolerance to salt stress in three pepper accessions used previously as rootstocks: a physiological and genetic approach (Lidia López-Serrano, Spain)**
S9-4: Tomato rootstocks contribute to abiotic stress tolerance: emphasis on root chill tolerance (Felipe Barrios Masias, USA)
S9-5: Mode of compatibility of wild melongene (*Solanum stramonifolium*) rootstock to combat bacterial wilt in tomatoes (Puran Bridgemohan, Trinidad and Tobago)
S9-6: Development of eggplant rootstocks resistant to bacterial wilt (Mohamed Rakha, Taiwan)

3:10 – 3:30PM Extension summation

3:30 – 3:40PM Break

3:40 – 4:30PM Symposium Summary and Closing

**Thursday, July 18**

Post Symposium Tour (*pre-registration required*)

**List of Poster Presentations:**

*Poster Session I (Flash Talks I: 12:30 – 1:00PM & Poster Session I: 1:00 – 1:50PM, Monday, July 15)*

P1-1: Field evaluation of new watermelon grafting methods to reduce verticillium wilt (Scott Lukas, USA)
P1-2: Rootstock and plastic mulch effect on grafted watermelon flowering and fruit maturity (Pinki Devi, USA)**
P1-3: Growing new roots for tomato to boost off season production through grafting technology (Sumeet Singh, India)
P1-4: Study on the relationship between seedling age and plug seedling standardization in vegetable crops (Yang Gyu Ku, Korea)
P1-5: Influence of cylindrical paper pot system on the reduction of decreased growth caused by excessive irrigation compared with the plug system in fruit and vegetable seedlings (Il-Seop Kim, Korea)
P1-6: Compatibility of dwarf vegetable pommecythere (Spondias dulcis (syn. Spondias cytherea)) root stock and Jamaican plum (Spondias Purpurea L) scion (Puran Bridgemohan, Trinidad and Tobago)
P1-7: Using Solanum galapagense as a source of drought resistance through introgression breeding and grafting for tomato improvement (Sean Fenstemaker, USA)**
P1-8: Evaluation of tomato (Solanum lycopersicum 'Pectomech') grafts against root knot nematode Meloidogyne incognita (Naalamle Amissah, Ghana)
P1-9: Changes of seedling quality of grafted cucumber transplants grown in cylindrical paper pot by different fertilizer concentrations and seedling growing days (Sewoong An, Korea)
P1-10: Evaluating fungicides and grafting to reduce Pythium disease in watermelon (Sean Toporek, USA)**
P1-11: Developing tomato rootstock recommendations for high tunnel production and enhancing our understanding of the 'rhizobiome' (Cary Rivard, USA)
P1-12: Application of grafting technology for the control of tomato verticillium wilt caused by Verticillium dahliae (Yeonyee Oh, USA)
P1-13: Cost estimates for grafted, non-grafted, and direct seeded cantaloupes (Russell Tronstad, USA)
P1-14: Rootstocks affect response of grafted cucumbers to silicon supplementation (Min Wei, China)
P1-15: Grafted pepper fruits retain similar market quality to those harvested from their own-rooted counterparts across a range of rootstock and scion genotypes (Joe Scheerens, USA)
P1-16: Exploring the use of Cucurbita rootstocks for early spring planting of seedless watermelon in North Florida (Sylvia Willis, USA)**
P1-17: Screening rootstocks to mitigate the supra-thermal stress of bell pepper crops (Salvador Lopez-Galarza, Spain)**
P1-18: Screening World Vegetable Center eggplant and pepper rootstocks for resistance to verticillium wilt (Abigail Attavar, USA)**
P1-19: Grafting for open-field production of heirloom tomatoes in California (Margaret Lloyd, USA)
P1-20: Performance of grafted hybrid tomatoes within a Midwestern United States high tunnel in the absence of soilborne disease pressure (Ajay Nair, USA)

Poster Session II (Flash Talks II: 10:50 – 11:20AM & Poster Session II: 11:20AM – 12:10PM, Tuesday, July 16)

P2-1: The study on the effect of Five Cucurbit Rootstocks on growth, development and active substances content of medicinal pumpkin (Cucurbita pepo subsp. pepo var. Styriaca) (Majid Azizi, Iran)
P2-2: Histological and transcriptomic reveal the healing mechanism at graft junction of cucumber grafted onto squash heterografts (Xianchang Yu, China)**
P2-3: Grafted combinations affect tomato root growth and water permeability (Takashi Ikeda, Japan)
P2-4: Grafting watermelon onto pumpkin improves the nitrogen uptake and nitrogen use efficiency (Zhilong Bie, China)
P2-5: Effects of shade treatment on bioactive compounds in the fruit of pepper plants grown under high light intensity stress during summer (Yang Gyu Ku, Korea)
P2-6: Growth of grafted tomato seedlings as affected by N and P contents in a nutrient solution during cultivation after graft union formation (Yurina Kwack, Korea)
P2-7: Non-destructive characterization of grafted tomato root systems using the mini-horhizotron (Christopher Gunter, USA)
P2-8: The use of supplementary lighting enhances the quality of grafted watermelon seedlings (Athanasios Koukounaras, Greece)
P2-9: Growth change after grafting of root pruning splice grafted cucumber seedling grown in different media (Seung Jae Hwang, Korea)
P2-10: A conceptual model of smart grafted transplant production system (Sewoong An, Korea)
P2-11: Short-term mechanisms of grafted pepper using NIBER rootstock, tolerant to salinity (Lidia López-Serrano, Spain)**
P2-12: The role of ethylene in long-distance transportation of grafted vegetable seedlings (Tricia Jenkins, USA)**
P2-13: Molecular marker-assistant selection of pumpkin rootstocks for powdery mildew resistance and blooming capacity (Jiaxing Tian, China)
P2-14: Grafting bell peppers onto pepper and tomato rootstocks, and the effects on yield and plant morphology (Cary Rivard, USA)
P2-15: Environmental conditions affect silicon absorption and bloom formation on fruit surface of grafted and non-grafted cucumbers (Min Wei, China)
P2-16: Exploring chamberless healing for small-scale production of grafted tomato transplants (Tian Gong, USA)**
P2-17: Pathogenic races and putative fungal effectors in *Fusarium oxysporum f. sp. lycopersici* from greenhouse tomato in North Carolina (Frank Louws, USA)
P2-18: Effect of supplemental lighting source combined with intensity on quality of grafted tomato plug seedlings (Hao Wei, China)
P2-19: A meta-analysis of the effects of watermelon grafting on yield and fruit quality (Zhifeng Gao, USA)
P2-20: Functional characterization and expression analysis of influx silicon transporter LSi1 in pumpkin rootstocks and cucumber scion during bloom accumulation on cucumber fruits (Jintao Cheng, China)

**Presenters for Young Minds Award Competition**