



6-9 march 2016 / Santiago, Chile

## Symposium program

### Monday March 7

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**09:00 - 10:00 Opening Session (joint with congress)**

10:00 - 10:30 Coffee break

**10:30 - 12:00 World Economics and Food Challenges (joint with congress)**

**12:00 - 12:40 World Tomato Production (joint with congress)**

**12:40 – 13:15 High-Tech Farming Solution (joint with congress)**

13:15 - 14:15 Lunch

**14:15 – 17:00 ISHS Session 1: Processing efficiency coping with cost increments**

Chairs: Diane Barrett (University of California, Davis, USA) & Luca Sandei (SSICA, Italy)

- **Invited conference: Improving resource efficiency in tomato processing. Ricardo Amon** (University of California, Davis, USA)
- **Factors affecting the loss of consistency during the concentration of juice to paste and consistency changes during paste storage.** Diane Barrett (University of California, Davis, USA)

15:15- 15:45 Coffee break

- **Rapid characterization of processed tomato purees using mid-infrared spectroscopy.** Sylvie Bureau (INRA, France)
- **Obtaining tomato paste enrichers using tomato byproducts.** Crespo Bermejo Abel (CTAEX, Spain)
- **Factors affecting consumer's acceptance towards Spanish tomato products: a preliminary study on gazpacho soup.** Virginia Fernandez Ruiz (University Complutense Madrid, Spain)
- **Innovation in industrial tomato sector in Algeria.** Amel Bouzid (CREAD, Algeria)

**17:00 – 18:30 ISHS Poster session & award ceremony (joint with congress)**

## Tuesday March 8

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### 9:00 - 12:00 ISHS Session 2: Breeding as a tool for optimizing productivity and fruit quality

Chairs: Gwen Young (Kagome, USA) & Montaña Camara (University Complutense Madrid, Spain)

- **Invited conference: Can the challenges of climate-induced yield reduction be met with new breeding technology?** David Francis (Ohio State University, USA)
- **Evaluation of volatile and non-volatile taste and flavour compounds of some Italian tomato cultivars throughout processing.** Luca Sandei (SSICA, Italy)
- **Traditional Andean tomatoes: Agronomic performance, fruit nutritional quality and potential for alternative processing.** Pablo Asprelli (INTA La Consulta, Argentina)
- **Nutritional quality of orange tomatoes for fresh consumption and processing products.** Iris Edith Peralta (UN Cuyo, Mendoza, Argentina)

10:30 - 11:00 coffee break

- **Claims related to lycopene and olive oil as functional ingredients in tomato food products: Salmorejo.** Montaña Cámara (Universidad Complutense de Madrid, Spain)
- **Exploring the whole tomato metabolites through metabolomics approaches.** Daisuke Shibata (Kyoto University, Japan)
- **Antiplatelet effect of fresh tomato, tomato paste and pomace.** Rosío Rodríguez Azúa (CEAP, Chile)

12:00 - 14:00 Lunch

### 14:00 – 17:30 ISHS Session 3. Optimizing plant nutrition and water management

Chairs: Gene Miyao (UC Davis, USA) & Liz Mann (APTRC, Australia)

- **Invited conference: The challenge of nutrition management of processing tomatoes in an era of rising yield expectations.** Tim Hartz (University of California, Davis, USA)
- **Evaluation of different fertiliser programmes and measures of nitrogen plant status for the guidance of plant nitrogen fertilization in a processing tomato on commercial farms.** Carlos Campillo (CICYTEX, Spain)
- **Managing nitrogen fertiliser and irrigation to reduce nitrous oxides emissions is a win for the environment, your health and farm productivity.** Liz Mann (APTRC, Australia)
- **Evaluating water status in processing tomato using combined information from different sensors.** Juan Ignacio Macua (INTIA, Spain)
- **Development of an efficient water management system in a processing tomato commercial farms.** Carlos Campillo (CICYTEX, Spain)

16:00- 16:30 Coffee break

- **Simultaneous effect of mycorrhizae and water supply on yield formation of processing tomato.** Lajos Helyes (Szent István University, Hungary)
- **Sub-surface Drip Irrigation with Gyp-Flo in Processing Tomatoes.** Liz Mann (APTRC, Australia)

- **Seasonal and irrigation effect on yield parameters and soluble solids content of processing cherry tomato.** Péter Szuvandzsiev (Szent István University, Hungary)
- **Characterization of the water needs of tomato for processing in Extremadura (Spain).** Jose Luis Llerena (CTAEX, Spain)

Evening: Gala dinner

## Wednesday March 9

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### 09:30 - 10:30 ISHS Session 4: Planning and IPM Management

Chairs: Cosme Argerich (INTA, Argentina) & Carlos Campillo (CICYTEX, Spain)

- **Management of powdery mildew (*Oidiopsis sicula*) in Central California.** Tom Turini (UCCE Fresno County, USA)
- **Tomato powdery mildew – challenging problem for researchers, breeders and growers.** Ales Lebeda (Palacký University, Czech Republic)
- **Thrips Management in Processing Tomatoes and Influence on *Tomato spotted wilt virus* Symptom Incidence in Central California.”** Tom Turini (UCCE Fresno County, USA)
- **Modelling of agricultural and industrial planning in the tomato processing industry using mathematical programming.** Cleber Rocco (Unicamp, Brazil)

10:30 - 11:00 Coffee break

**11:00-12:30 Motivational speech: Actitude, Actitude... (joint with congress)**

**12:30 - 13:00 Closing session (joint with congress)**

13:00 - 14:30 Light buffet lunch

## List of Posters

### Posters on crop production

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**Response of tomato plants to potassium fertilization under greenhouse in arid conditions.**

Abdulrahman M. Al-Moshileh. Plant Prod. and Prot. Dept, College of Agriculture and Veterinary Medicine, Qassim University, Saudi Arabia.

**Processing tomato cultivation in South Korea.**

Choon Gil Kang\*, Seung-Chul Yang, Ki Ju Hong, Byoung Sang Chung; R&D Center, Ottogi Corporation, South Korea.

**The use of foliar applications of abscisic acid (ABA) to reduce Blossom End Rot (BER) in processing tomatoes.**

P.A. Smith\* and C.A. Argerich; EEA INTA La Consulta, Mendoza, Argentina

**A focus on high-lycopene tomato cultivars: horticultural performance and phytochemical profile.**

Riadh Ilahy<sup>1\*</sup>, Helyes Lajos<sup>2</sup>, Mohammed Wasim Siddiqui<sup>3</sup>, Gabriella Piro<sup>4</sup>, Marcello Salvatore Lenucci<sup>4</sup> and Chafik Hdidder<sup>1</sup>; <sup>1</sup>Laboratory of Horticulture, National Agricultural Research Institute of Tunisia, Tunis, Tunisia, <sup>2</sup>Laboratory of Horticulture, Horticultural Institute, Szent István University, Faculty of Agricultural and Environmental Sciences, Hungary, <sup>3</sup>Department of Food Science and Postharvest Technology, Bihar Agricultural University, India, <sup>4</sup>Dipartimento di Scienze e Tecnologie Biologiche ed Ambientali, Università del Salento, Italy.

**New glass fertiliser for tomato crops to reduce environmental impact.**

Juan Rubio<sup>1</sup>, Raquel Rodríguez<sup>2</sup>, Ascensión Ciruelos<sup>2</sup>, Oscar Ruiz<sup>3</sup>, Pablo A. Lozano<sup>4</sup>, Rosa de la Torre<sup>2</sup>; <sup>1</sup>Instituto de Cerámica y Vidrio. CSIC. Madrid, Spain, <sup>2</sup>CTAEX. Centro Tecnológico Nacional Agroalimentario «Extremadura», Badajoz, Spain, <sup>3</sup>Torreced, S.A. Alcora, Castellón, Spain, <sup>4</sup>San Isidro de Miajadas, Cáceres, Spain.

**Application of VIS-NIR reflectance spectra for estimating soluble solid- and lycopene content of open field processing tomato fruit juice from irrigation and mycorrhizae treatments.**

Péter Szuvandzsiev\*, Hussein Daood, Katalin Posta, Lajos Helyes, Zoltán Pék; <sup>1</sup>Institute of Horticulture, Szent István University, Hungary, <sup>2</sup>Regional Knowledge Center, Szent István University, Hungary

**Climatic variability in Extremadura (Spain) for the processing of tomato.**

L.L. Paniagua<sup>1</sup>, A Garcia-Martin<sup>1</sup>, M.A. Rozas<sup>1</sup>, E. Ordiales<sup>2</sup>, J.L. Llerena<sup>2,3</sup>; <sup>1</sup>Department of Agronomic and Forestry Engineering. University of Extremadura, Badajoz, Spain, <sup>2</sup>CTAEX. National Agrofood Technological Center «Extremadura», Badajoz, Spain, <sup>3</sup>Plant Physiology area. Science Faculty. Extremadura University, Badajoz, Spain.

**Evolution of tomato cultivation in Extremadura, Spain 2001-2014.**

A. Espejo<sup>1</sup>, R. Sanchez<sup>1</sup>, P. Garcia<sup>1</sup>, J.L. Llerena<sup>1,2\*</sup>; <sup>1</sup>CTAEX. National Agrofood Technological Center «Extremadura», Badajoz, Spain, <sup>2</sup>Plant Physiology area. Science Faculty. Extremadura University, Badajoz, Spain.

**Early warning system to control *Alternaria alternata* in the Chilean tomato paste industry.**

Susana Arredondo<sup>1</sup>, Francisco Pérez-Galarce<sup>1</sup>, Marisol Reyes<sup>2</sup>; <sup>1</sup>Estudios en Alimentos Procesados, Talca, Chile, <sup>2</sup> INIA Raihuen, Estación Villa Alegre, Chile.

**Bacterial Canker: Strategies to Limit Losses in Michigan, United States.**

M.K. Hausbeck; Department of Plant, Soil and Microbial Sciences, Michigan State University, East Lansing, USA.

**Evaluation of the acybenzolar-s-methyl effect, alone or combined with azoxystrobin, on the control of blossom end rot in tomato industry cultivated in two different water regimes.**

Giuliani M. M.<sup>1</sup>, Gatta G.<sup>1</sup>, Nardella E.<sup>1</sup>, Fanigliulo A.<sup>2</sup>, Prencipe N.<sup>3</sup>, Crescenzi A.<sup>4\*</sup>; <sup>1</sup>Dipartimento di Scienze Agrarie, degli Alimenti e dell'Ambiente Università degli Studi di Foggia, Italy, <sup>2</sup>Bioagritest Srl , Centro Interregionale di Diagnosi Vegetale, Pignola, Italy, <sup>3</sup>Syngenta Italia Spa, Milano, Italy, <sup>4</sup>Dipartimento di Scienze. Università degli Studi della Basilicata, Potenza, Italy.

**Remotely piloted aircraft for agricultural spraying in high value crops.**

D.K. Giles, R. Billing and W. Singh. Department of Biological & Agricultural Engineering, University of California, Davis, California, USA.

**Influence of sheep wool as organic fertilizer in processing tomato.**

Elena Ordiales<sup>1</sup>, Juan I. Gutiérrez<sup>1</sup>, Lorena Zajara<sup>1</sup>, Jesús Gil<sup>1</sup>, José L. Llerena<sup>1</sup>, Manfred Lanzke<sup>2</sup>; <sup>1</sup>Centro Tecnológico Nacional Agroalimentario Extremadura, CTAEX.Spain. <sup>2</sup>IFN Anwenderzentrum GmbH, Germany.

**Egyptian broomrape eradication effort in California: A progress report on the joint effort of regulators, University, tomato growers and processors.**

Gene Miyao; University of California Cooperative Extension, Yolo, Solano and Sacramento counties, USA.

**Quality and yield of tomato as influenced by mulch and tillage methods.**

Ramendra Singh\*, Siddharth Singh, Bilok Sharma, Bhupender Solanki, Sanjeev Nigam and Sameer Sachdeva; Agri. Centre of Excellence Field Fresh Foods Pvt. Ltd., Ludhiana, India.

**Incidence of blind transplants of processing tomato from primed seeds.** Warley M. Nascimento, Patricia P. Silva; Embrapa Vegetables, Brasília, Brazil.

**The effect of industry tomato seeds assessment using computerized image analysis.**

Patricia P. Silva, Giovani Olegário da Silva, Warley Marcos Nascimento, Embrapa Vegetables, Brasília, Brazil.

## **Posters on Processing and Products**

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**Biogas productivity potential of agro-industrial biomasses, generated by the tomato processing industry.**

M. Martínez<sup>1,2</sup>, L. Driller<sup>1</sup>, R. Chamy<sup>1,2</sup>, Wolfgang Schuch<sup>1</sup>, M. Nogueira<sup>3</sup>, P. Fraser<sup>3</sup>; <sup>1</sup>Fraunhofer Chile Research Foundation, Center for Systems Biotechnology, Santiago, Chile; <sup>2</sup>Escuela de Ingeniería Bioquímica, Pontificia Universidad Católica de Valparaíso, Chile, <sup>3</sup>School of Biological Sciences, Royal Holloway University of London, UK.

**Correlation between NTSS, squeezed brix and brix in cold break tomato paste.**

Mark DeLamater, Siva Subramanian CG\*; Olam Spices & Vegetable Ingredients, Innovation & Quality, Fresno, USA.

**The technological observatory for the tomato industry.**

A. Espejo<sup>1</sup>, P. Garcia<sup>1</sup>, C. Perez<sup>3</sup>, J.L. Llerena<sup>1,2</sup>; <sup>1</sup>CTAEX. National Agrofood Technological Center « Extremadura », Badajoz, Spain, <sup>2</sup>Plant Physiology area. Science Faculty. Extremadura University, Badajoz, Spain.

**Tomato bio-based lacquer for sustainable metal packaging.**

Angela Montanari\*<sup>1</sup>, Luciana Bolzoni<sup>1</sup>, Ilaria Cigognini<sup>1</sup>, Ascensión Ciruelos<sup>2</sup>, Montserrat Gómez Cardoso<sup>2</sup>, Rosa de la Torre Carreras<sup>2</sup>; <sup>1</sup>Stazione Sperimentale per l'Industria delle Conserve Alimentari, Parma, Italy, <sup>2</sup>Centro Tecnológico Agroalimentario, Carretera de Villafranco del Guadiana, Badajoz, Spain

**Mechanism of antiplatelet action induced by guanosine from tomatoes (*Solanum lycopersicum*).**

Eduardo Fuentes<sup>1,2</sup>, Marcelo Alarcón<sup>1,2</sup>, Iván Palomo<sup>1,2</sup>; <sup>1</sup>Departamento de Bioquímica Clínica e Inmunohematología, Facultad de Ciencias de la Salud, Universidad de Talca, Chile, <sup>2</sup>Centro de Estudios en Alimentos Procesados (CEAP), CONICYT-Regional, Gore Maule, Chile, <sup>3</sup>Center for Bioinformatics and Molecular Simulations, Faculty of Engineering in Bioinformatics, Universidad de Talca, Chile.

**Obtaining enriched fried tomatoes sauce using tomato byproducts**

Riballo Ruíz-Roso M<sup>a</sup> José, Guerrero García-Ortega, M<sup>a</sup> Patricia, Crespo Bermejo Abel; CTAEX, Centro Tecnológico Nacional Agroalimentario «Extremadura», Badajoz. Spain.

## List of all papers

### Oral presentations

Paper number	Abstract title	Presenting author
K1	Improving resource efficiency in tomato processing	Ricardo Amon
S1-1	Factors affecting the loss of consistency during the concentration of juice to paste and consistency changes during paste storage	Diane Barrett
S1-2	Rapid characterization of processed tomato purees using mid-infrared spectroscopy	Sylvie Bureau
S1-3	Obtaining tomato paste enrichers using tomato byproducts	Bermejo Abel Crespo
S1-4	Factors affecting consumer's acceptance towards Spanish tomato products: a preliminary study on gazpacho soup	Virginia Ruiz
S1-5	Innovation in industrial tomato sector in Algeria	Amel Bouzid
K2	Can the challenges of climate-induced yield reduction be met with new breeding technology?	David Francis
S2-1	Evaluation of volatile and non-volatile taste and flavour compounds of some Italian tomato cultivars throughout processing	Luca Sandei
S2-2	Traditional Andean tomatoes: agronomic performance, fruit nutritional quality and potential for alternative processing	Pablo Asprelli
S2-3	Nutritional quality of oranges tomatoes for fresh consumption and processing products	Iris Edith Peralta
S2-4	Claims related to lycopene and olive oil as functional ingredients in tomato food products: Salmorejo	Montana Camara
S2-5	Exploring the whole tomato metabolites through metabolomics approaches	Daisuke Shibata
S2-6	Antiplatelet effect of fresh tomato, tomato paste and pomace	Rosío Rodríguez Azúa
K3	The challenge of nutrition management of processing tomatoes in an era of rising yield expectations	Tim Hartz

S3-1	Evaluation of different fertiliser programmes and measures of nitrogen plant status for the guidance of plant nitrogen fertilization in a processing tomato on commercial farms	Carlos Campillo
S3-2	Managing nitrogen fertiliser and irrigation to reduce nitrous oxides emissions is a win for the environment, your health and farm productivity	Liz Mann
S3-3	Evaluating water status in processing tomato using combined information from different sensors	Juan Ignacio Macua
S3-4	Development of an efficient water management system in a processing tomato commercial farms	Carlos Campillo
S3-5	Simultaneous effect of mycorrhizae and water supply on yield formation of processing tomato	Lajos Helyes
S3-6	Sub-surface Drip Irrigation with Gyp-Flo in Processing Tomatoes	Liz Mann
S3-7	Seasonal and irrigation effect on yield parameters and soluble solids content of processing cherry tomato	Péter Szuvandzsiev
S3-8	Characterization of the water needs of tomato for processing in Extremadura (Spain).	José Luis Llerena
S4-1	Management of powdery mildew ( <i>Oidiopsis sicula</i> ) in Central California	Tom Turini
S4-2	Tomato powdery mildew – challenging problem for researchers, breeders and growers	Ales Lebeda
S4-3	Thrips Management in Processing Tomatoes and Influence on Tomato spotted wilt virus Symptom Incidence in Central California	Tom Turini
S4-4	Modelling of agricultural and industrial planning in the tomato processing industry using mathematical programming	Cleber Rocco

### Posters on Crop production

Paper number	Abstract title	Presenting author
P1-1	Response of tomato plants to potassium fertilization under greenhouse in arid conditions	Abdulrahman Almshileh
P1-2	Processing tomato cultivation in South Korea	Choon Gil Kang



P1-3	The use of foliar applications of abscisic acid (ABA) to reduce Blossom End Rot (BER) in processing tomatoes	Patrick Smith
P1-4	A focus on high-lycopene tomato cultivars: horticultural performance and phytochemical profile	Lajos Helyes
P1-5	New glass fertiliser for tomato crops to reduce enviromental impact	Rosa de la Torre
P1-6	Application of VIS-NIR reflectance spectra for estimating soluble solid- and lycopene content of open field processing tomato fruit juice from irrigation and mycorrhizae treatments.	Péter Szuvandzsiev
P1-7	Climatic variability in Extremadura (Spain) for the processing of tomato.	José Luis Llerena
P1-8	Evolution of tomato cultivation in Extremadura, Spain 2001-2014	José Luis Llerena
P1-9	Early warning system to control <i>Alternaria alternata</i> in the Chilean tomato paste industry	Susana Arredondo
P1-10	Bacterial Canker: Strategies to Limit Losses in Michigan, United States.	Mary Hausbeck
P1-11	Evaluation of the acybenzolar-s-methyl effect, alone or combined with azoxystrobin, on the control of blossom end root in tomato industry cultivated in two different water regimes	Aniello Crescenzi
P1-12	Remotely piloted aircraft for agricultural spraying in high value crops.	Ken Giles
P1-13	Influence of sheep wool as organic fertilizer in processing tomato	Elena Ordiales Rey
P1-14	Egyptian broomrape eradication effort in California: A progress report on the joint effort of regulators, University, tomato growers and processors	Gene Miyao
P1-15	Quality and yield of tomato as influenced by mulch and tillage methods	Ramendra Singh
P1-16	Incidence of blind transplants of processing tomato from primed seeds	Warley Nascimento
P1-17	The effect of industry tomato seeds assessment using computerized image analysis	Warley Nascimento

## Posters on Processing & Products

<b>Paper number</b>	<b>Abstract title</b>	<b>Presenting author</b>
P2-1	Biogas productivity potential of agro-industrial biomasses, generated by the tomato processing industry	María Eugenia Martínez
P2-2	Correlation between NTSS, squeezed brix and brix in cold break tomato paste	Siva Subramanian
P2-3	The technological observatory for the tomato industry	José Luis Llerena
P2-4	Tomato bio-based lacquer for sustainable metal packaging	Rosa de la Torre
P2-5	Mechanism of antiplatelet action induced by guanosine from tomatoes ( <i>Solanum lycopersicum</i> )	Eduardo Fuentes
P2-6	Obtaining enriched fried tomatoes sauce using tomato byproducts	Bermejo Abel Crespo