

LIST OF CONTENTS

Foreword	vii
Preface	viii
List of contents	ix
List of authors	xvii
List of participants	xxi
What I always wanted to know about kinetic modelling, but ... <i>P. Tijssens and R. Schouten</i>	1
Produce quality and shelf-life	
Reaction mechanisms for volatiles responsible of off-odors of fresh cut melons <i>M.L. Amodio, S. Pati, A. Derossi, L. Mastrandrea and G. Colelli</i>	15
Modelling visual quality losses of fresh-cut romaine lettuce <i>F. López-Gálvez, A. Vermeulen, F. Devlieghere, J.A. Tudela, L. Jacxsens and M.I. Gil</i>	23
Deviation from the biological age model as an early indication of chilling injury on kiwifruit <i>J. Feng, M. Wohlers, A. Nangul, P. Martin and D. Brummell</i>	31
Relationship between the bulk optical properties and the quality properties of citrus fruit <i>C.J. Sun, R. Van Beers, B. Aernouts and W. Saeys</i>	39
Evaluation of strawberry nutritional quality <i>L. Mazzoni, F. Balducci, M. Marcellini, V. Pergolott, F. Capocasa and B. Mezzetti</i>	47
Modelling basil (<i>Ocimum basilicum</i>) visual quality as affected by storage temperature <i>F. López-Gálvez, A. Vermeulen, M. Eriksson, P. Ragaert and F. Devlieghere</i>	55
Postharvest chitosan treatment on blueberry (<i>Vaccinium corymbosum</i>) quality during long term cold storage <i>A. Spinardi, R. Beghi, G. Cocetta and I. Mignani</i>	61
Evaluation of different analytical methods to determine grape organic acids <i>A. Spinardi, R. Beghi, F. Sambo, S. Longoni and L. Valenti</i>	69
Non-destructive applications for fruit physiology and quality	
Combining chemometric tools with infrared (IR) spectroscopy <i>F. Marini</i>	75

Modeling the change in color of mature green tomato during ripening at different storage temperatures based on cumulative ethylene production <i>D. Ciptaningtyas, W. Kagoshima, R. Iida, H. Umehara, M. Johkan, N. Nakamura, T. Orikasa, M. Thammawong and T. Shiina</i>	83
A process-based model to predict the evolution and final concentration of sugars in mangoes <i>A. Drouillard, I. Grechi, M. Lechaudel, Y. Laridon and M. Génard</i>	91
Automatic procedure to contactless and non-destructive quality evaluation of fruits and vegetables through a computer vision system <i>B. Pace, M. Cefola, D.P. Cavallo and G. Attolico</i>	99
Colour analysis to predict the total chlorophyll content of rocket leaves <i>B. Pace, D.P. Cavallo, M. Cefola, S. Burbaci and G. Attolico</i>	107
Modeling optical properties of Braeburn apples during fruit maturation on the tree <i>A. Rizzolo, M. Vanoli, A. Torricelli, L. Spinelli, N. Sadar and A. Zanella</i>	113
Visible/near infrared spectroscopy for horticulture: case studies from preharvest to postharvest <i>R. Beghi, V. Giovanzana, A. Tugnolo and R. Guidetti</i>	123
Non-destructive Vis/NIR time-series to model apple fruit maturation on the tree <i>R. McCormick and K. Biegert</i>	131
Non-destructive applications for fruit postharvest physiology	
Relationship between bulk scattering, sensory texture and water spectral pattern in 'Braeburn' apples <i>A. Rizzolo, M. Vanoli, M. Buccheri, M. Grassi, F. Lovati, A. Torricelli, L. Spinelli, N. Sadar and A. Zanella</i>	141
Assessment of eggplant freshness using non-destructive techniques <i>F. Babellahi, P. Tsouvaltzis, M.L. Amodio and G. Colelli</i>	149
Online postharvest assessment of quality in spinach plants using near-infrared spectroscopy <i>I. Torres, D. Pérez-Marín, J.A. Entrenas and M.T. Sánchez</i>	157
Impact of pre- and postharvest factors on spreading of brown rot in nectarine: a quantitative compartmental model <i>E. Casagrande, D. Plénet, S. Lurol, F. Charles, M. Génard, F. Lescourret and D. Bevacqua</i>	163

Determination of soluble solid content in apples using near infrared spectroscopy 169
M. Šubrťová, V. Danková, P. Suran and L. Zelený

Non-destructive prediction of scald susceptibility by means of near-infrared spectroscopy 179
A. Zanella, S. Stürz, N. Sadar and I. Ebner

Improving the horticultural chain

Knowledge mobilisation crossing boundaries: a multi-perspective framework for agri-food value chains 185
S. Liu, G. Zhao, H. Chen, A. Fernandez, D. Torres, L. Antonelli, H. Panetto and M. Lezoche

Assessing the role of regional labels for consumers 201
F.G. Santeramo, E. Lamonaca, B. De Devitiis, R. Viscecchia and G. Nardone

Environmental variables traceability device to predict postharvest quality and remaining shelf life of fruit and vegetables 209
R. Torres-Sánchez, M.T. Martínez-Zafra, N. Castillejo and F. Artés-Hernández

Thermal analysis of a cold room 217
G. La Fianza, F. Giametta, L. Brunetti, M. Orsino, B. Bianchi, C. Perone and P. Catalano

Thermo-fluid-dynamic characteristics of confluent jets for distribution of treated air in small environment 225
G. La Fianza, F. Giametta, L. Brunetti, M. Orsino, B. Bianchi, C. Perone and P. Catalano

Innovative quality-based strategies for the agri-food sector 233
F.G. Santeramo, E. Lamonaca, D. Carlucci, B. De Devitiis, A. Seccia, R. Viscecchia and G. Nardone

Dynamic simulation driven design and management of production facilities in agricultural/food industry 241
B. Bianchi, F. Catalano, R. Oliveto and S. Ricciardi

Postharvest physiology

A modelling approach to explain low apparent RQ-measurements of (D)CA stored Conference pear fruit 249
N. Bessemans, B.E. Verlinden, M. Janssens, P. Verboven, M.L.A.T.M. Hertog and B.M. Nicolai

Effect of MAP on the accumulation of stachyose in the edamame and its modeling <i>R. Iida, T. Kitazawa, H. Umehara, M. Thammawong, K. Nakano, H.A. Naznin, T. Orikasa, D. Ciptaningtyas, M. Nagata and T. Shiina</i>	257
Model for simulation of gas, moisture and condensation dynamics in packaged fresh produce <i>A. Jalali, M. Linke and P.V. Mahajan</i>	263
The potential to adopt the Hill equation to describe ethylene effects on postharvest fruit softening <i>J. Tongonya, S.G. Gwanpua and A.R. East</i>	273
Respiratory gas diffusivity mapping of horticultural product using X-ray CT <i>B. Nugraha, P. Verboven, S. Janssen and B.M. Nicolai</i>	281
Parameter estimation of a model describing respiration rate of dragon fruit as a function of gas composition and temperature <i>P.L. Ho, D.T. Tran, M.L.A.T.M. Hertog, Q.T. Nguyen and B.M. Nicolai</i>	289
Modular sensor-based respirometer for real-time monitoring of respiration rate <i>N. Keshri, I. Truppel, W.B. Herppich, M. Geyer and P.V. Mahajan</i>	297
Plant physiology and environmental conditions	
Parameter estimation of the dynamic model for chill accumulation in temperate fruits <i>J.A. Egea and D. Ruiz</i>	303
A method to predict the time of harvesting based on water consumption and changes in berry composition of table grapes ('Superior seedless'®) under plastic sheet covering <i>L. Tarricone, G. Dragonetti and V. Verrastro</i>	311
Preliminary results on the blooming charge assessment in apple orchards using a prototype of mobile lab <i>G. Daglio, R. Gallo, S. Petrera, C. Andergassen, M. Kelderer and F. Mazzetto</i>	319
Shading screens and ventilation efficiency in a naturally ventilated greenhouse by means of CFD modeling <i>E. Santolini, A. Barbaresi, B. Pulvirenti, D. Torreggiani and P. Tassinari</i>	327
Use of artificial intelligence on UAVs for real time plant diseases detection <i>P. Ivanov, M. Crimaldi, V. Cristiano, M. Isernia and F. Sarghini</i>	335

Estimation of cut butcher's broom (<i>Danae racemosa</i> (L.) Moench) foliage vase life through the measurement of leaf functionality <i>G. Cocetta, A. Trivellini and A. Ferrante</i>	343
Tensegrity greenhouse: an innovative covering structural system with low shading <i>S. Fuina, G. Scarascia-Mugnozza and S. Castellano</i>	349
An artificial neural network model to predict olive mechanical harvesting: a first approach based on metadata <i>P. Masella, G. Angeloni, A. Spadi, L. Guerrini, A. Cappelli, A. Parenti, F. Baldi and E. Cini</i>	355
Decision support system and weather forecast data for modeling open field vegetable crops evapotranspiration <i>J.S. Rubio-Asensio, J.M. Ramírez-Cuesta, J.M. Mirás-Avalos, J.J. Alarcón and D.S. Intrigliolo</i>	361
Supplemental lighting with LED for efficient year-round production of soilless tomato in a Mediterranean greenhouse <i>O.D. Palmitessa, B. Leoni, F.F. Montesano, F. Serio, A. Signore and P. Santamaria</i>	367
Process control	
Modeling in postharvest: a multiscale perspective <i>F. Sarghini and A. De Vivo</i>	375
Inversion of a numerical model to predict the effective moisture diffusivity of fruits during drying as a function of temperature and moisture content <i>C. Cevoli and A. Fabbri</i>	385
Improved spectrophotometric models and methods for the non-destructive and effective foodstuff parameters forecasting <i>A. Matera, G. Altieri, F. Genovese and G.C. Di Renzo</i>	395
Microwaves for mild postharvest fruit treatment <i>M. Fiore, N. Di Modugno, C. Bruno, T. De Nicolo and M. Fioretti</i>	403
Mathematical modelling of the decanter for olive oil extraction <i>A. Leone, R. Romaniello and A. Tamborrino</i>	411
The theory of sifting the soil mass when cleaning potatoes on a spiral separator <i>S. Pascuzzi and V. Bulgakov</i>	417

Numerical modeling of the rheological characteristic of olive paste under different conditioning treatments: traditional malaxation, high-frequency ultrasound and microwave <i>A. Tamborrino, P. Catalano, R. Romaniello, B. Bianchi and A. Leone</i>	425
Feasibility of computer vision as process analytical technology tool for the drying of organic apple slices <i>R. Moschetti, F. Raponi, M. Cecchini, D. Monarca and R. Massantini</i>	433
Microwave-assisted heating prototype designed for an interactive ready-to-heat foodstuff delivery system <i>A. Matera, G. Altieri, F. Genovese and G.C. Di Renzo</i>	439
Mathematical model of the movement of a potato body along the surface of a spiral separator <i>V. Bulgakov and S. Pascuzzi</i>	447
Olive oil mill towards Industry 4.0 <i>P. Catania, E. Roma and M. Vallone</i>	455
Pulsed electric fields for application to grape must: microbial modulation and extraction of bioactive compounds <i>M. Fiore, N. Di Modugno, C. Bruno, T. De Nicolo, P. Russo, V. Capozzi, A. Paduano, M.L. Clodoveo and R. Amirante</i>	461
Plant responses to agronomic conditions	
Validation of the new modelling for soil water relations and N soil dynamics of the GesCoN DSS: a new release <i>A. Elia, P. La Rotonda, C. Lazzizzera and G. Conversa</i>	469
Health risk assessment on a low-cost water desalination and sensor technology compact module – DESERT <i>J.C. Intriago Zambrano, F. López-Gálvez, A. Allende, G.A. Vivaldi, S. Camposeo, E. Nicolas, J.J. Alarcón and F. Pedrero</i>	477
Experimental testing of a model-based Decision Support System integrated with smart sensors to optimize irrigation strategies for processing tomato: a case study in southern Italy <i>V. Buono, G. Gatta, E. Riezzo, A. Manes, E. Nardella, A. Gagliardi, F. Carucci and M.M. Giuliani</i>	485
CAL-FERT: a simulation-based decision support system for precision fertilization of vegetable crops <i>D. Massa, A. Pardossi and L. Incrocci</i>	493

Establishing of early discrimination methods for drought stress of tomato by using environmental parameters and NIR spectroscopy in greenhouse <i>Yuan-Kai Tu, Han-Wei Chen, Shih-Lun Fang, Min-Hwi Yao, Yeu-Yang Tseng and Bo-Jein Kuo</i>	501
Neural network clustering for crops thermal mapping <i>L. Comba, A. Biglia, D. Ricauda Aimonino, P. Barge, C. Tortia and P. Gay</i>	513
Soil and portable sensors for the management of the irrigation and berry ripening in cover cropped table grape vineyards <i>G. Ferrara, A. Mazzeo and R. Torres</i>	521
Methyl jasmonate effects on pomegranate fruit yield and quality at harvest and during storage depend on the applied concentration <i>M.E. García-Pastor, A. Martínez-Esplá, J. Medina-Santamarina, F. Guillén, S. Castillo and P.J. Zapata</i>	527
Performance evaluation of a non-chemical weed control machine for vineyards and orchards operating with high pressure cold water <i>M. Varani, G. Molari, M. Mattetti and A. Ferrari</i>	533
Modulatory effects of biochar, hydrochar and vermicompost on the growth of horticultural plants and phytopathogenic fungi <i>M. Parlavecchia, R. Gattullo, G. Perri and E. Loffredo</i>	541