PROCEEDINGS OF THE
INTERNATIONAL SYMPOSIUM
POSTHARVEST PACIFICA 2009 –
PATHWAYS TO QUALITY

Vth INTERNATIONAL SYMPOSIUM ON MANAGING QUALITY IN CHAINS

in collaboration with the

AUSTRALASIAN POSTHARVEST HORTICULTURAL CONFERENCE

Co-Conveners

A.B. Woolf
E.W. Hewett

Napier, New Zealand
November 15-19, 2009

ISHS Commission Quality and Post Harvest Horticulture
ISHS Working Group on Quality in Chains
New Zealand Institute for Agricultural and Horticultural Science (Inc.)

Acta Horticulturae 880
November 2010
LIST OF CONTENTS

Foreword 6
Preface 7
List of Contents 9
List of Authors 15
List of Participants 19

Consumer and World Trends

Consumers and Food Choice: Quality, Nutrition and Genes 29
L.M.M. Tijskens, I. Ostan, B. Poljšak and M. Simčič

Fresh Produce Valuation in Portuguese Traditional Food Markets: Consumer Perspectives 39
J. Sampaio, L.M. Cunha, A.P. Moura and A. Rocha

The Sensory Profiles of Kiwifruit Hybrids Involving Actinidia eriantha 47
J. Gamble, L. Axten, M. Wohlers, I. Hallett and A. Seal

Health and Nutrition

The Quality and Antioxidant Capacity during Storage of Sweet Cherries Are Affected by Ripening Stage at Harvest 57

Supply Chains

Postharvest Science and Value Chain Management: Using the Virtuous Value Cycle to Define Common Ground 67
R. Collins

Linking Small Horticultural Producers with Markets: Indian Experiences and Lessons 75
S. Singh

Toward Developing a Sea-Freight Supply Chain for Delivering Pakistani Mangoes to European Supermarket: a Private-Public Sector Model 83

Opportunities for Innovation in Specialised Fruit and Vegetable Retailing: Results from an Auckland Greengrocer Survey 91
C. Fischer

Ready to Eat Nectarines - Assuring Quality in the Chain 99

Conditioning ‘Anjou’ Pears to Meet Consumer Quality Demands 105
E.M. Kupferman, K. Gallardo, C. Sater and A. Colonna
Quality Management of Fresh Fruit and Vegetables at a Supermarket Chain in Japan
T. Akinaga, S. Kawasaki and H. Shima

Managing Mango Fruit Quality through the Supply Chain: a Pakistan Case Study
M.S. Mazhar, R. Collins, J.A. Campbell, A.U. Malik, P. Johnson, A. Dunne, X. Sun and M. Amin

Systems Approach to Reducing Waste in the Fresh Produce Supply Chain
I. Ben-Tzur and G. Ward

The Role of Quality Assessments as a Decision Making Tool in the Imported Fruit (Sea Freight) Value Chain
R.M. Worsfold, M. Ciccioni and A.-M. Arts

Supply Chain Workshop: Summary of Key Success Factors for Horticultural Supply Chains and the Supply Chain of the Future
G. McEvilly and C. Fischer

Preharvest Factors and Maturity and Physiology

Intermittent Warming Interactions on the Ripening of Green Mature Tomatoes
P. Biswas, A.R. East, E.W. Hewett and J.A. Heyes

Preharvest Solar Heat Treatment for Summer Basil (Ocimum basilicum) Affects Decay during Shipment and Shelf Life
D. Kenigsbuch, D. Chalupowicz, Z. Aharon, D. Maurer, A. Ovadia and N. Aharoni

Kiwifruit Respiration Rates, Storage Temperatures and Harvest Maturity
J.A. Heyes, D.J. Tanner and A.R. East

How to Predict the Harvest Date of Tropical Fruit: from Simple Methods to Complex Models
M. Lechaudel, G. Damour, P. Fournier, J. Joas and M. Jahiel

Improvement of ‘Crimson Seedless’ Grape Colour by Abscisic Acid Treatment
S. Lurie, A. Lichter, T. Kaplunov, Y. Zutahy, M. Oren-Shamie and R. Ovadia

Salicylic Acid Prolongs Shelf Life and Improves Quality of ‘Maria Delicia’ Peach Fruit
N.A. Abbasi, S. Hafeez and M.J. Tareen

Postharvest Performance of Two Cyrtanthus Genotypes (PM12 and NR7)
M. Debenham, A. McLachlan and J. Eason

Understanding Links between Preharvest Conditions and Postharvest Management in Production Chains Is One of the Keys to Ensuring Fruit Quality in Commercial Networks
J. Joas, C. Desvignes, E. Vulcain and M. Lechaudel

Spatially Resolved Monitoring of Fruit Development in an Apple Orchard by Means of Sensor Fusion
R. Gebbers and M. Zude
Comparison of ‘Cripps Pink’ Apple Bruising
B. Abbott, P. Holford and J.B. Golding 223

Quality of Starfruit Harvested at Advanced Maturity Stage
M. Pauziah, S.A. Tarmizi, P. Mohd Salleh and M. Norhayati 230

European Pear Softening as Influenced by Picking Date, Storage Time and Temperature

Growth Acceleration and Increased Out Plant Survival of Ontario and Ohio Grown Tree Liners

Changes in Sugar and Total Oxalic Acid Contents in Different Sections of Bamboo Shoots Harvested at Different Maturity

Influence of Maturity Stage at Harvest on Essential Oil Composition of Dill Leaves (Anethum graveolens L.) and of Postharvest Treatments on Freshness of Fresh-Cut Dill
G. Tibaldi, E. Fontana and S. Nicola 261

Non-Destructive Methods for Determining Quality
Assessing the Harvest Maturity of Brazilian Mangoes

Non-Invasive Sensing of Fruit Development in Banana and Papaya by Means of a Spectroscopic Approach
M. Zude, J. Sasse and H. Schallnus 277

Application of Compression Force in Monitoring Firmness of ‘Hayward’ Kiwifruit (Actinidia deliciosa)
J. Feng, B.R. Mackay, K.M. Maguire and P.B. Jeffery 283

J. Feng, B.R. Mackay, K.M. Maguire, T. Tran, M. Bartle and G. Wallace 291

Ethylene and 1-MCP
Managing Physiological Processes in Fruits and Vegetables with Inhibitors of Ethylene Biosynthesis and Perception
C.B. Watkins 301

Non-Volatile Derivative of 1-MCP Prevents Ethylene Responses in Ornamentals
E.C. Sisler, L. Seglie, H. Mibus and M. Serek 311

A Comparison of Various Systems for Long Term Storage of ‘Hass’ Avocado Fruit
J.R. Marques, P.J. Hofman, B.A. Stubbings, J.A. Campbell and L.R. Barker 317
Characteristics of Ethylene Producing ‘Hort16A’ Kiwifruit (*Actinidia chinensis* Planch. var. *chinensis*)


Ethylene Ripening of Pears by Unconventional Means: Use of an Ethylene Release Canister within Covered Pallets

*K.R. Sharrock, C.J. Clark, R.F. Henzell and D.A. Barker*

Ethylene Ripening of Pears by Unconventional Means: Use of Experimental Thimble-Sized Ethylene Capsules inside Cartons and Clamshells

*K.R. Sharrock and R.F. Henzell*

Response of Papaya (‘Eksotika’) Fruit to Different 1-Methylcyclopropene Concentrations

*Z.M. Ali and S.M. Mamat*

Additional Effect of 1-MCP and Modified Atmosphere Packaging (MAP) on the Storage Life of Banana Fruit

*S. Ketsa*

Effect of Maturity and 1-MCP on Physiology of Tomato Slices

*D.H. Pangaribnan, D.E. Irving and T.J. O’Hare*

Using “Omics” to Understand Postharvest Biology

Postharvest Metabolomics

*B.M. Nicolaï, R. Pedreschi, A. Geeraerd, T. Vandendriessche and M.L.A.T.M. Hertog*

Proteomic Analysis Identifies Proteases Upregulated during Petunia Corolla Senescence

*M.L. Jones, L.J. Chapin and S. Bai*

A Viral Induced Gene Silencing Approach to Study Galactose Loss in Cell Walls during Flower Development and Senescence

*D.A. Hunter, C.Z. Jiang, J.M. Labavitch, K. Morris, M.S. Reid and E.M. O’Donoghue*

Market Access and Disinfestation: Quarantine and Pathology

Using Food-Safe Ingredients to Optimize the Efficacy of Oil-in-Water Emulsions of Essential Oils for Control of Waxy Insects

*R.G. Hollingsworth and R.M. Hamnett*

Studies and Commercial Application of VAPORPH3OS Phosphine Fumigant for Disinfestation of Exported Fruits and Vegetables in South America

*P. Horn, F. Horn, J. Tumambing and M. Rogers*

Improved Sulfur Dioxide Fumigation of Fresh Longan Using a Vertical Forced-Air Technique

*J. Phimphimol, J. Varith, S. Jaturonglumlert, P. Chommuang and K. Kubnop*
Electrochemical Biosensor for a Simple and Rapid Detection of Canker (Xanthomonas axonopodis pv. citri) in Pomelo for Export
P. Chaumpluk, P. Chaiprasart and E. Tamiya

Effects of Colletotrichum gloeosporioides and Monilinia fructicola on Quality of Red Flesh Dragon Fruit (Hylocereus polyrhizus)
Y. Awang, M.A.A. Ghani and K. Sijam

A Systems Approach to Mitigate Oriental Fruit Fly Risk in ‘Sharwil’ Avocados Exported from Hawaii
P.A. Follett and R.I. Vargas

Quality Variability of Strawberries in the Southern North Island of New Zealand
A. Jabbar, A.R. East and C. Jenkins

Hot Water Drenches for Control of Soft Rots on Washed Kumara (Sweet Potato)

Recent Trends in Australasian and World Horticultural Market Access Research and Development
A.B. Woolf, J. Armstrong, L. Jamieson and J.B. Golding

Packaging and Storage

Postharvest Practices for Managing the Quality of Longans and Rambutans
M.M. Wall, K.A. Nishijima, L.M. Keith and M.A. Nagao

Product Allocation of Greenhouse Gases Produced by Coolstorage Facilities
A.R. East, R.J. Love, A.S. Hume and S.J. McLaren

Responses of Feijoa Fruit ‘Unique’ to Controlled Atmosphere Storage

Postharvest Cracking and Testa Removal Methods for Canarium indicum Nuts in the Pacific
H.M. Wallace, M. Poienoi, B. Randall and J. Moxon

Relation of Water Loss to Compressive and Tensile Texture Attributes of Three Chilli Cultivars

Quality of Fresh-Cut Apple Slices Is Modulated by Short Term Post-Controlled Atmosphere Air Storage of Whole Fruit
P.M.A. Toivonen, C.R. Hampson, P.A. Wiersma, B. Lannard and Changwen Lu

Evaluation of High Electric Field Chamber for Shelf Life Extension of Food and Agricultural Commodities
T. Shiina, D. Nei, N. Nakamura and M. Thammawong

Postharvest Storage Temperatures Impact Significantly on Apricot Fruit Quality
Moisture Content and Strength of Corrugated Cardboard Exposed to a Nano-Sized Mist
T. Uchino, F. Tanaka, D. Hamanaka and Y. Nakano

Fresh Cut and Safety

Surface Adhesion of *Salmonella enterica* and *Staphylococcus aureus* under Fluctuating Temperatures
D. Hamanaka, K. Morimatsu, F. Tanaka and T. Uchino

Fluorescence Biosensor for a Simple and Rapid Detection of *Escherichia coli* in Fresh-Cut Fruits
P. Chaumpluk and P. Chaiprasart