

# FRUIT QUALITY WORKING GROUP

Activity Report 2014

**Krzysztof Rutkowski**

Research Institute of Horticulture,  
Skierniewice, Poland



22nd EUFRIN Board meeting  
13 & 14 November 2014, Brussels

# Activities 2014

- ✓ List of WG members
- ✓ Conference
- ✓ Meetings
- ✓ Proposals (H2020 & TN)



3<sup>rd</sup> International Conference  
**Effects of Pre- and Post-harvest Factors  
on Health Promoting Components  
and Quality of Horticultural Commodities**  
March 23-25, 2014, Skierniewice, Poland

# Outline

- The history of the Conference
- Postharvest 2014
  - ✓ plenary sessions
  - ✓ poster session
  - ✓ professional trip
  - ✓ Workshop and meeting
- Summary

# History...

**Effects of Pre- and Post-Harvest Factors on Health Promoting Components and Quality of Fruit and Vegetables**

International Conference organized by

Research Institute of Vegetable Crops      Research Institute of Pomology and Floriculture

COST Action 924 Initiative



Under the auspices of:

**Polish Academy of Sciences,  
Storage Section of the Committee  
of Horticultural Science  
&  
Polish Society for Horticultural Science**

May 22 - 23, 2006  
Skierniewice, Poland

**INTERNATIONAL CONFERENCE**

**Effects of pre- and post-harvest factors on health promoting components and quality of fruit and vegetables**

COST ACTION 924 initiative



Organized by:

Research Institute of Vegetable Crops      Research Institute of Pomology and Floriculture

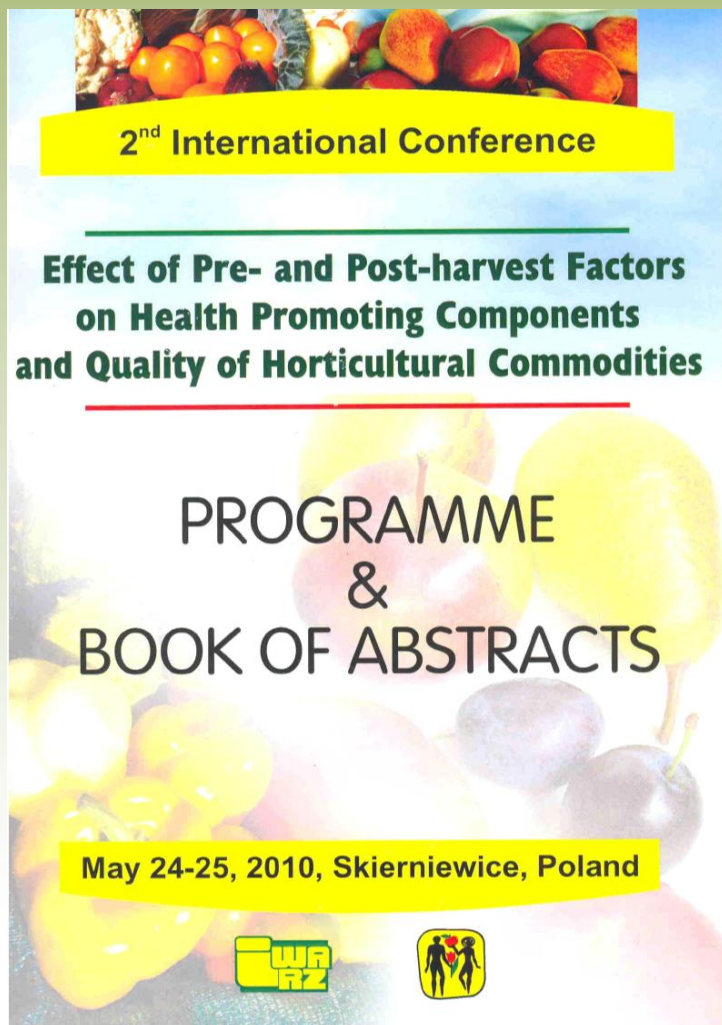
 

Under the auspices of:

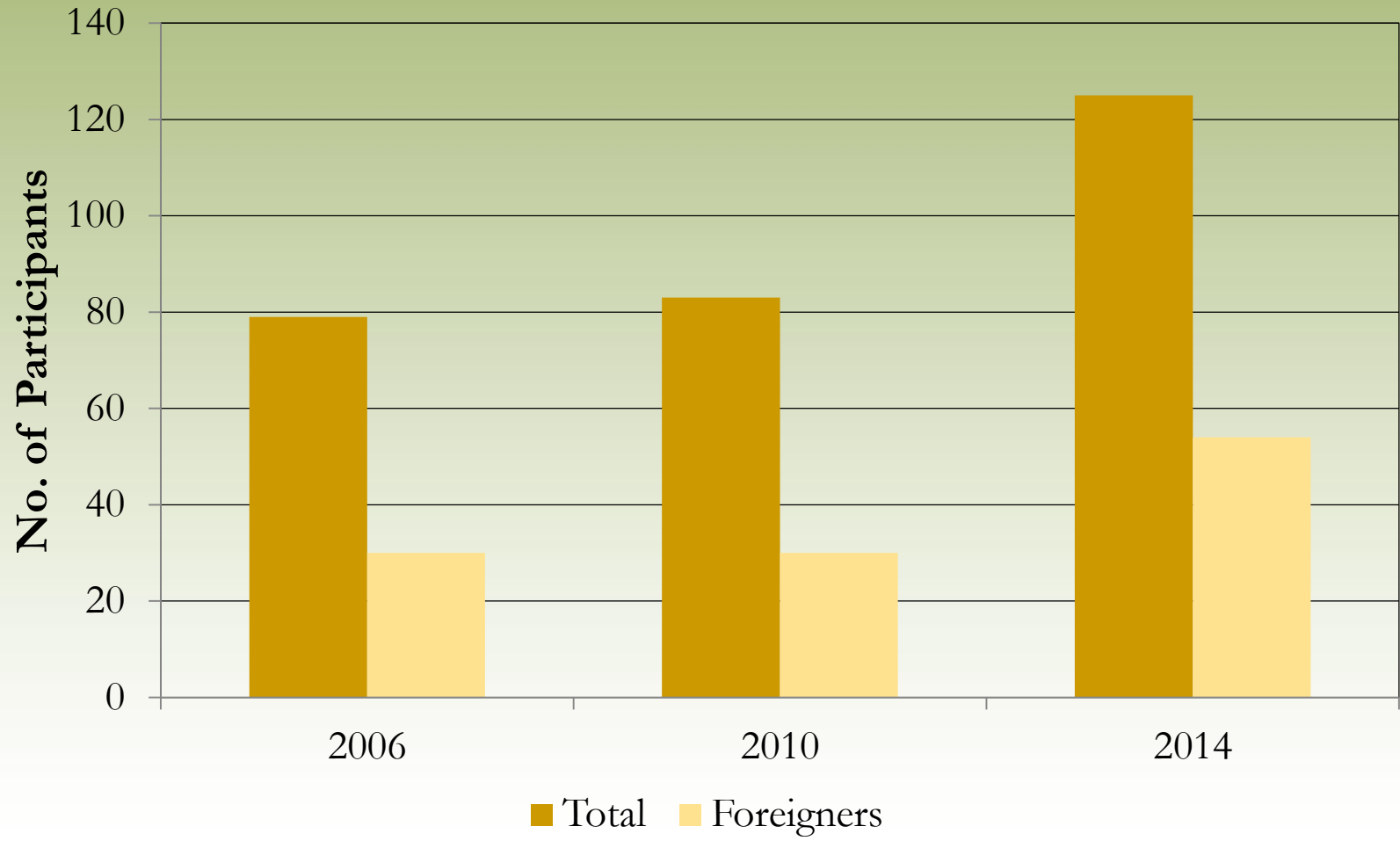
Polish Academy of Sciences,  
Storage Section of the Committee of Horticultural Science  
&  
Polish Society for Horticultural Science

**BOOK OF ABSTRACTS AND FINAL PROGRAMME**

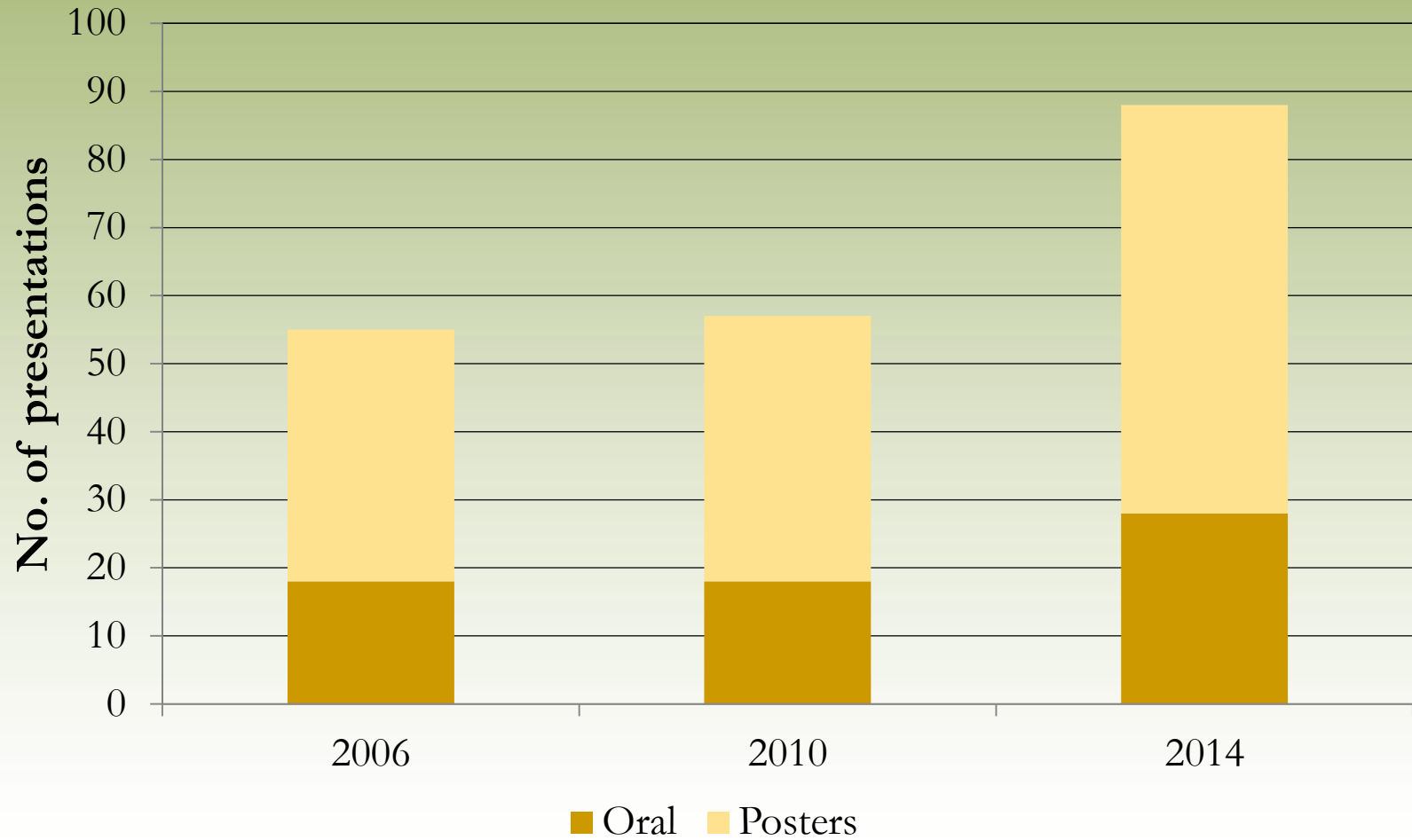
# History...



# History...



# History...





# Postharvest 2014

The purpose of the conference was to present the latest results of the research carried out in Poland and abroad with special reference to the quality and sustainability of horticultural products, innovative technologies used in storage and technology of minimally processed fruits and vegetables.

# Postharvest 2014

## Main topics:

- ✓ quality and health promoting properties of fruit and vegetables,
- ✓ effect of a diet rich in fruits and vegetables on human health,
- ✓ the influence of pre- and post-harvest treatments on quality of fruit and vegetables and content of health promoting components,
- ✓ innovative storage technologies
- ✓ the use of non-chemical methods for improve the storability of horticultural products
- ✓ minimally processed fruits and vegetables.

# Postharvest 2014

## Organizing Committee

Franciszek Adamicki, Chairman

Krzysztof Rutkowski, vice-Chairman

Anna Skorupinska, Secretary

Ewa Badelek

Marek Gajewski

Maria Grzegorzewska

Zbigniew Jozwiak

Aneta Matulska

Barbara Michalczuk

Kalina Sikorska-Zimny

# Postharvest 2014

## Scientific Committee

**Franciszek Adamicki (Poland)**

**Giancarlo Colelli (Italy)**

**Elazar Fallik (Israel)**

**Marek Gajewski (Poland)**

**Ryszard Kosson (Poland)**

**Edward Lange (Poland)**

**Christian Larrigaudiere (Spain)**

**Lech Michalczuk (Poland)**

**Dariusz Nowak (Poland)**

**Witold Plocharski (Poland)**

**Jan Skrzynski (Poland)**

**Kazimierz Tomala (Poland)**

# Welcome reception





# Welcome reception





# Welcome reception



# Welcome reception





# Plenary sessions

## ORAL PRESENTATIONS'

A state of the art on quality and safety of fresh-cut products through the EC-funded R&D project QUAFETY  
**Colelli G.**, Amodio M.L., Colantuono F.

The effect of hot water treatment on durability of Chinese cabbage  
**Grzegorzewska M.**, Badelek E., Sikorska-Zimny K., Kosson R., Szczech M., Dyki B.

Development of a diagnostic instrument for evaluation of food quality and safety management systems  
**Tzamalís P.**, Panagiotakos D., Drosinos E.H.

Impact of processing and storage on nutritional and functional properties of strawberry  
Amaro A.L., Pereira M.J., Carvalho S., Vasconcelos M., **Pintado M.**

Evaluation of volatile organic compounds in rocket leaf for non-destructive analysis of post-harvest quality  
**Spadafora N.D.**, Müller C.T., Bates M., Rogers H.J.

Isolation of molecular markers for the evaluation of quality in pre-harvest and post-harvest stages in rocket and melon  
**Cavaiuolo M.**, Coccetta G., Spinardi A., Ferrante A.

Testing suitability of melon genotypes for fresh-cut processing  
**Rodov V.**, Burger Y., Vinokur Y., Horev B., Kenigswald M., Shinde R., Vaida R., Avni B., Fallik E.

The effect of hot water treatments on quality parameters of 'Golden Delicious' apples  
Grabowski M., Macnar K., **Skrzyński J.**

Water spraying of raspberries as tool for fresh produce shelf life extension  
**Kevrešan S. Ž.**, Mastilović S.J.

Comparison of the efficacy of recent sanitation techniques for safety and quality of fresh white asparagus spears  
Hassenberg K., Huyskens-Keil S., **Herppich W.B.**

Ethylene and microbial hotspots in the UK fresh produce supply chain  
**Rees D.**, Hipps N., Colgan R., Thurston K.

DA-meter to measure maturity stage at harvest and storability in plums (*Prunus domestica* L.)  
**Vangdal E.**, Børve J., Lunde Knutsen I., Kvamm-Lichtenfeld K.

Postharvest classification for uniform ripening of tomato picked in early ripening stages  
**Mastilović S. J.**, Kevrešan S. Ž., Belović M.

Pre- and postharvest practices may influence pepper fruits after prolonged storage  
**Fallik E.**, Perzelan Y., Weingerg T., Alkalai-Tuvia S.

## ORAL PRESENTATIONS'

The influence of pre- and postharvest factors on chemical compounds in 'cherry' tomato fruits  
**Mazur K.Z.**, Gajewski M., Niedzińska M., Przybył J.L., Metera A., Wtulich J.

Production of winter garlic seeds under different ways and periods of harvesting  
**Poliakov A.V.**, Nemirova L.S., Alekseeva T.V.

Determination of oleanolic acid and ursolic acid in the apple peel by HPLC method  
**Pofubok A.**, Markowski J., Rutkowski K., Michalczuk L.

Suitability of new apple cultivars from Holovously for long time storing in ULO  
**Blažek J.**, Pištěková I.

Aroma quality of wild and cultivated strawberries (*Fragaria* spp.) in relation to the flavour-related gene expression  
**Bianchi G.**, Lovazzano A., Lanubile A., Marocco A.

Quality potential of some new pear cultivars – how to obtain fruit of the best sensory characteristics?  
**Konopacka D.**, Rutkowski K.P., Kruczyńska D.E., Skorupińska A., Plocharski W.

Fruit quality of some Asian pear cultivars grown in Poland  
**Skorupińska A.**, Kruczyńska D.E., Konopacka D., Kaczmarek U., Rutkowski K.P., Jóźwiak Z.B.

Quality management of 'Kluai Khai' banana in supply chains to meet the requirement for exporting market  
Sangudom T., Wongs-Aree C., **Kanlayanarat S.**

Prospects for modulating storage temperature and moisture loss in apple and pear storage  
**Colgan R.**, Rees D., Thurston K.

Benefits in apple fruit firmness retention after harvest achieved due to SmartFresh (1-MCP) treatment or dynamic controlled atmosphere storage by means of chlorophyll fluorescence (DCA-CF)  
**Zanella A.**, Stuerz S., Cazzanelli P., Cecchinell M., Rossi O.

The influence of harvest date, SmartFresh<sup>SM</sup> (1-MCP) treatment and storage conditions on quality of 'Shampion' apples  
**Rutkowski K. P.**, Markowski J., Siucińska K.

On site measurement of oxygen concentration in chlorophyll fluorescence based dynamic controlled atmosphere storage  
**Jóźwiak Z.B.**

The effect of light spectrum on the content of pigments in *Solanaceae* vegetables  
**Alsiņa I.**, Erdberga I., Dubova L., Dūma M., Gmizo G.

Pearl shade net improving quality traits in pepper after harvest  
Perzelan Y., Alkalai-Tuvia S., Weinberg T., **Fallik E.**

# Plenary sessions



# Plenary sessions



## Prof. Giancarlo Colelli (Italy)

A state of the art on quality and safety of fresh-cut products through the EC-funded R&D Project “QUAFETY”



# Plenary sessions



## Elazar Fallik (Israel)

Pre- and postharvest practices may influence pepper fruits after prolonged storage



# Plenary sessions



# Plenary sessions





# Poster session

No	Authors / Title
1.	Adamczewska-Sowińska K., Turczuk J.– The yielding and biological value of garlic chives in relation to the type of mulching applied
2.	Amodio M.L., Derossi A., Colelli G. – Modeling phenolic compounds during storage of cut fruit and vegetables: a consecutive reaction mechanism
3.	Amodio M.L., Derossi A., Mastrandrea L., Colelli G. – Modeling quality changes of MA packaged rocket salad under isothermal conditions
4.	Assanelli M., Profeta G., Romani C., Sabbadini G. – Protocol and test report on sanitizing water treatment alternative to chlorine hypochlorite
5.	Badelek E., Grzegorzewska M., Sikorska-Zimny K., Stępowaska A., Dyško J., Smolińska U., Kowalska B., Witkowska D. – The effect of application of <i>Trichoderma</i> fungi during vegetation of pepper and tomato plants on storage ability of the fruits
6.	Badelek E., Kosson R., Adamicki F. – The effect of control atmosphere and ethylene on quality and content of some components of onion bulbs
7.	Balbierz A., Kolota E. – Storage ability of selected scallop squash cultivars grown for fruit processing
8.	Bolling J.S., Herppich W.B. – New approaches for non-destructive evaluation of fruit ripening with optical methods and multivariate data analysis
9.	Bundinienė O., Zalatorius V., Kavaliauskaitė D., Starkutė R. – Efficiency of the additional fertilization with different nitrogen fertilizers and rates in growing of red beet of exceptional quality
10.	Cavaiuolo M., Coccetta G., Spinardi A., Ferrante A.I. – Isolation of molecular markers for the evaluation of quality in pre-harvest and post-harvest stages in rocket and melon
11.	Cavaiuolo M., Ferrante A., Russo P., Beneduce L., Spano G., Paramithiotis S., Hadjilouka A., Tzamalís P., Drosinos E.H. – Validation of innovative methods for human pathogen bacteria detection in fresh cut vegetables
12.	Česonienė L., Daubaras R., Venskutonis P.R., Kraujalytė V. – Biologically active substances in fruits of European cranberry bush and their storability
13.	Chelczyńska M., Keutgen A.J. – Health properties of garlic ( <i>Allium sativum</i> L.) of polish and foreign origin
14.	Daubaras R., Česonienė L., Venskutonis P.R., Kraujalytė V. – Antioxidative activity <i>in vitro</i> of different <i>Vaccinium</i> genotypes
15.	Dekena D., Jānes H., Alsina I., Lepse L. – The influence of dry matter and reducing sugar content in the annual shoots on the flowering intensity of plums
16.	Dyki B., Grzegorzewska M., Murgrabia A., Panek E. – The influence of hot water treatment on structure of rocket leaves tissues
17.	Dziedzic E., Błaszczuk J., Kaczmarczyk E. – Effect of rootstocks and storage conditions on sweet cherry fruits quality
18.	Gajewski M., Mazur K., Klejman P. – The influence of 1-MCP and CA storage on some physical traits of 'cherry' tomatoes
19.	Gonkiewicz A., Skrzyński J., Rzeźnicka B. – Postharvest treatment effect on storage ability of apples
20.	Horák M., Goliáš J., Balík J., Němcová A., Šnurkovič P. – Influence of storage temperatures on quality parameters on four Asian pears cultivars
21.	Horev B., Limudim S., Rodov V., Vinokur Y., Fallik E. – UV-C treatment controls microbial population on fresh-cut melons without negative effect on their quality
22.	Jariene E., Danilchenko H., Zaldariene S., Gajewski M. – Effects of vegetative period on quality of Jerusalem artichoke tubers
23.	Jędraszczuk E., Ambroszczyk A.M. – The influence of NanoGro® organic stimulator on yielding and fruit quality of field crop tomato
24.	Juhņeviča-Radenkova K., Skudra L., Radenkovs V., Segliņa D., Oļšteina A. – 1-Methylcyclopropene (1-MCP) influence on apple quality during storage time
25.	Juškevičienė D., Karklelienė R., Radzevičius A., Maročkienė N. – Evaluation of yield and morphological parameters of edible onion ( <i>Allium cepa</i> L.) grown in Lithuania
26.	Keutgen A.J., Pobereźny J., Wszelaczyńska E. – Changes of selected antioxidants in carrot root <i>Daucus carota</i> L. of different cultivars during storage
27.	Kocira A., Świeca M., Kocira S., Zlotek U., Kornas R. – The effect of Nano-Gro preparation on the yield and the antioxidant properties of common bean
28.	Kolota E., Balbierz A. – Effect of nitrogen fertilization on pre- and postharvest quality of scallop squash harvested at different stages of fruit maturity
29.	Kołton A., Wojciechowska R., Długosz-Grochowska O., Grzesiak W. – Comparison of lamb's lettuce storage ability treated with LED lamps and sodium (HPS) ones
30.	Koort A., Starast M., Moor U., Põldma P. – Postharvest quality of organically grown lowbush and half-highbush blueberries in modified atmosphere

# Poster session

No	Authors / Title
31.	Kosson R., Szwejda-Grzybowska J., Tuszyńska M., Dyško J., Szczech M. – Quality of tomatoes cultivated on substrates containing <i>Trichoderma</i> isolates
32.	Kosson R., Tuszyńska M., Szymczak P. – Effect of blanching and freezing on flavonoids content in broccoli
33.	Kosson R., Wrzodak A., Szwejda-Grzybowska J., Grzegorzewska M. – Influence of hot-water treatment on postharvest quality and sensory evaluation of fresh – cut muskmelon ( <i>Cucumis melo</i> L.)
34.	Krivorot A.M., Karanik V.S. – Effect of controlled and modified atmosphere on storability and fruit quality of thirteen plum cultivars in Belarus
35.	Laugale V., Strautina S., Krasnova I., Seglina D., Kampuss K. – Influence of different growing systems on strawberry chemical content in Latvia (temperate zone)
36.	Lepse L., Laugale V., Rosa E., Perles R., Pinto L – EUROLEGUME - Enhancing of legumes growing in Europe through sustainable cropping for protein supply for food and feed
37.	Lepse L., Lepsis J., Bimsteine G., Viskelis P. – Influence of controlled atmosphere on the cabbage ( <i>Brassica oleracea</i> var. capitata) storage quality
38.	Lepsis J., Bite A. – The apple rootstocks influence on tree growth and survival
39.	Linke M., Rux G., Herppich W., Geyer M. – Condensation dynamics in plastic film packaging in the perishables supply chain
40.	Markuszewski B., Kopytowski J. – Effect of modified storage conditions on the morphological characteristics of hazelnuts
41.	Matejček A., Paprstein F., Matejčkova J., Sedlak J. – Evaluation of flesh firmness using FTA device in apples stored in ULO
42.	Matulska A. – Effect of fruit maturity on chlorophyll fluorescence F-alpha oxygen stress signal
43.	Melnyk O., Drozd O., Boicheva N., Zhmudenko Y., Melnyk I., Khudik L., Remeniuk L., Vykhatniuk L., Pyrkalo V. – Ethylene-activity of apple and plum fruits during storage, postharvest treated 1-MCP (SmartFresh <sup>SM</sup> )
44.	Mieszczakowska-Frąć M., Buczek M., Kruczyńska D.E., Markowski J. – Chemical composition of selected red fleshed apples
45.	Molchanova A.V., Kurbakov E.L. – Biochemical content of leaves of green and salad crop
46.	Rizzolo A., Vanoli M., Bianchi G., Zanella A., Maurizio G., Torricelli A., Spinelli L. – Relationship between texture sensory profiles and optical properties measured by time-resolved reflectance spectroscopy during post storage shelf life of 'Braeburn' apples
47.	Rezaei Kalaj Y., Herppich W., Geyer M. – Effect of edible coating on postharvest quality of plum ( <i>Prunus domestica</i> L. 'Jojo' and 'Tophit') during storage
48.	Sikorska-Zimny K., Badelek E. – The influence of time and storage condition on level of indole-3-carbinol and sulphoraphane in brussels sprout
49.	Spadafora N.D., Müller C.T., Bates M., Rogers H.J. – Analysis of volatile organic compound profiles as markers for quality of fresh cut fruits
50.	Šterne D. – Air temperature influence on blueberry biochemical composition
51.	Sultan M.Z., Khalefa S.M., Hassanein M.K. – Influence of climatic changes on maturation, yield and characteristics of Keitt mango ( <i>Mangifera indica</i> L.) fruits
52.	Sultan M.Z., Tolba I. H., Khalefa S.M. – Limiting the deterioration of loquat fruit by some anti oxidants during storage at room temperature
53.	Szczech M., Kowalska B., Grzegorzewska M. – Microbial quality of fresh-cut vegetables treated with hot water
54.	Tikuma B., Liepniece M. – Pollinator influence on cranberry ( <i>Vaccinium macrocarpon</i> Ait.) yield and quality
55.	Wojciechowska J., Keutgen A.J. – Impact of UV-C irradiation and simulated sale conditions on the health promoting properties of raspberry fruits ( <i>Rubus idaeus</i> L.) cv. 'Polka'
56.	Wojciechowska R., Kolton A., Żupnik M. – Effect of supplemental lighting with the modern SSL LED technology on the ascorbate-nitrate index in lamb's lettuce leaves in autumn and winter season
57.	Wójcik-Stopczyńska B., Kądziołka D. – Laboratory effect of different derivatives of savory ( <i>Satureja hortensis</i> L.) on growth of harmful fungi
58.	Wrzodak A., Kosson R., Szwejda-Grzybowska J., Grzegorzewska M. – The effect of postharvest treatment on quality and sensory characteristics of rucola ( <i>Eruca sativa</i> )
59.	Wrzodak A., Stępowaska A., Smolińska U., Kowalska B., Szczech M. – Sensory quality of pepper fruit grown in soil with addition of <i>Trichoderma</i> fungi
60.	Zeipiņa S., Alsīņa I., Lepse L., Dūma M. – The effect of irrigation on the content of ascorbic acid and antioxidant activity of leafy vegetables



# Poster session



# Poster session



# Poster session

Of all presented posters Evaluation Committee composed of:

**Angelo Zanella (Italy) - Chairman**

**Elazar Fallik (Israel) - member**

**Giancarlo Colelli (Italy) - member**

**Krzysztof Rutkowski (Poland) - member**

**rewarded three posters, granting:**

# Poster session

## **First prize for the poster titled:**

„The influence of hot water treatment on structure of rocket leaves tissues” autorstwa: Barbara Dyki, Maria Grzegorzewska, Aleksandra Murgrabia, Elżbieta Panek (Poland)

## **Second place for the poster:**

„Influence of different growing systems on strawberry chemical content in Latvia (temperate zone)” autorstwa: Valda Laugale, Sarmite Strautina, Inta Krasnova, Dalija Seglina i Kaspars Kampuss – (Latvia)

## **Third place for the poster:**

“Ethylene–activity of apple and plum fruits during storage, postharvest treated 1-MCP (SmartFreshsm)” autorstwa: O. Melnyk, O. Drozd, N. Boicheva, Y. Zhmudenko, I. Melnyk, L. Khudik, L. Remeniuk, L. Vykhvatniuk, V. Pyrkalo – (Ukraine)



# Poster session



# Professional excursion



**"Innovative storage technologies - in practice",  
Group of Fruit Producers 'ROJA' in Regnow.**



# Professional excursion



# Professional excursion





# Professional excursion



# Professional excursion





# Professional excursion



# Professional excursion





# Meeting & Workshop

SEVENTH FRAMEWORK PROGRAMME  
THEME 2: Food, Agriculture and Fisheries, and Biotechnology  
Collaborative Projects KBBE.2011.2.4-01

COMPREHENSIVE  
APPROACH  
TO ENHANCE  
**QUALITY & SAFETY**  
OF READY-TO-EAT  
FRESH PRODUCTS

QUAFETY

UNIVERSITÀ DEGLI STUDI DI FERRARA

SAFE

[giancarlo.coelli@unife.it](mailto:giancarlo.coelli@unife.it)

On the first day of the conference there was a meeting of the members of the Scientific Consortium of a project carried out within the EU FP7 289719 (2012-2014) “Comprehensive approach to enhance quality and safety of ready to eat fresh products” - acronym “QUAFETY”.

# Meeting & Workshop



# Meeting & Workshop

The logo for 'eufriin' is displayed in a stylized, rounded font. The letters are primarily yellow with a thick blue outline. The 'i' in 'friin' has a small green leaf-like shape above its dot. The entire logo is centered within a white square background.

eufriin

# Meeting & Workshop

- ✓ participants: 14 people from 6 countries
- ✓ discussion on the acquisition of projects under the European Union Programme Horizon 2020
- ✓ proposal was put forward of changing the name of the Working Group. New name: „Postharvest and Fruit Quality”





# Summary

The conference was attended by 125 people (54 from abroad).

They were representatives of research centres from 17 countries (Czech Republic, Egypt, England, Estonia, Germany, Greece, Israel, Italy, Latvia, Lithuania, Norway, Poland, Portugal, Russia, Serbia, Thailand, Ukraine).



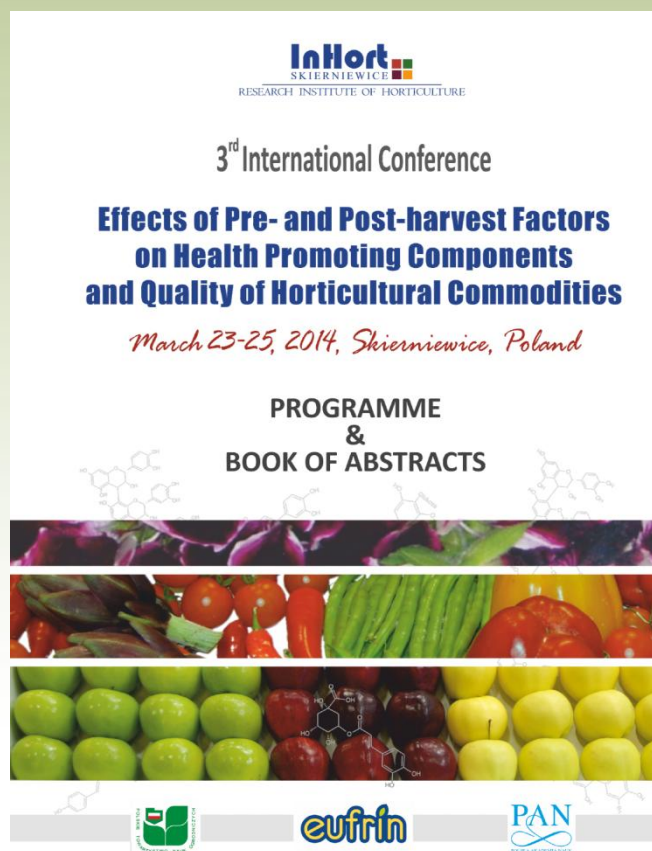
# Summary





# Summary

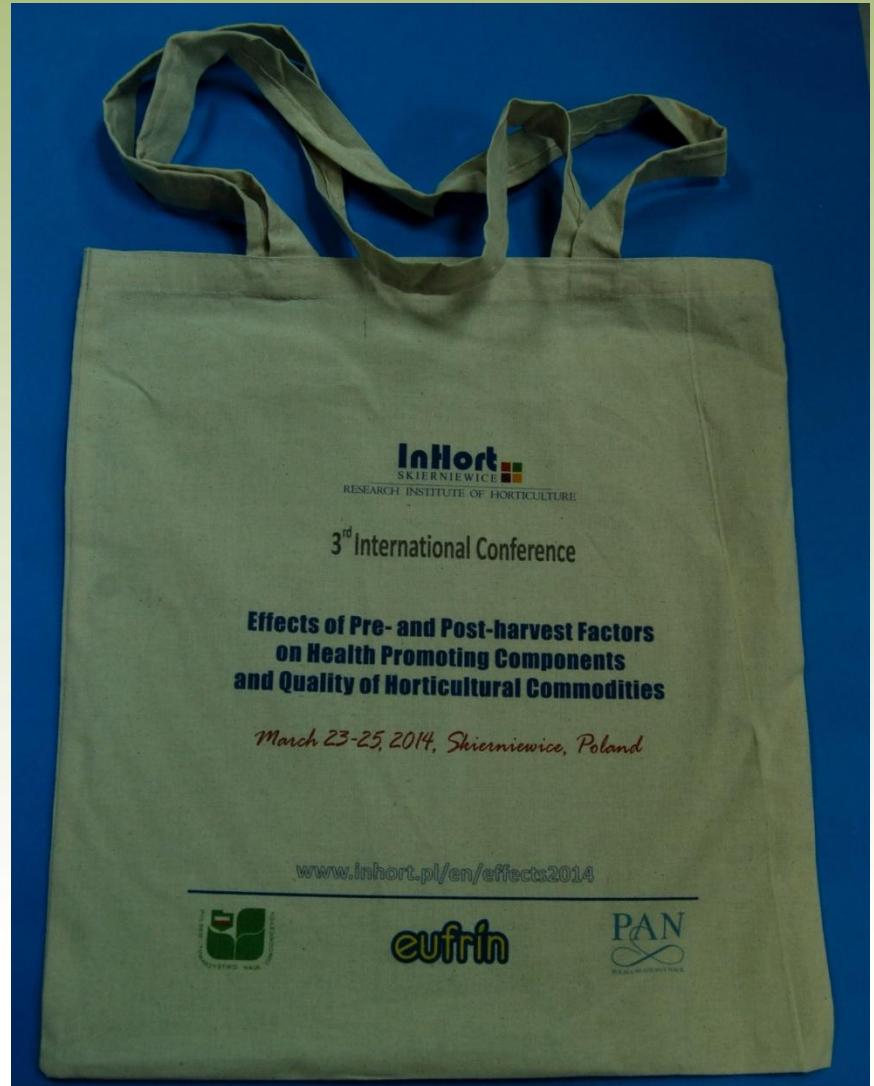
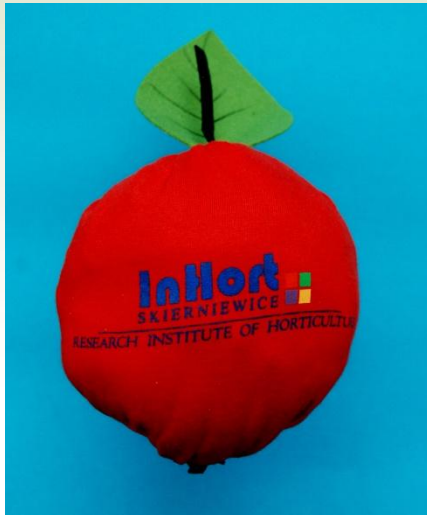
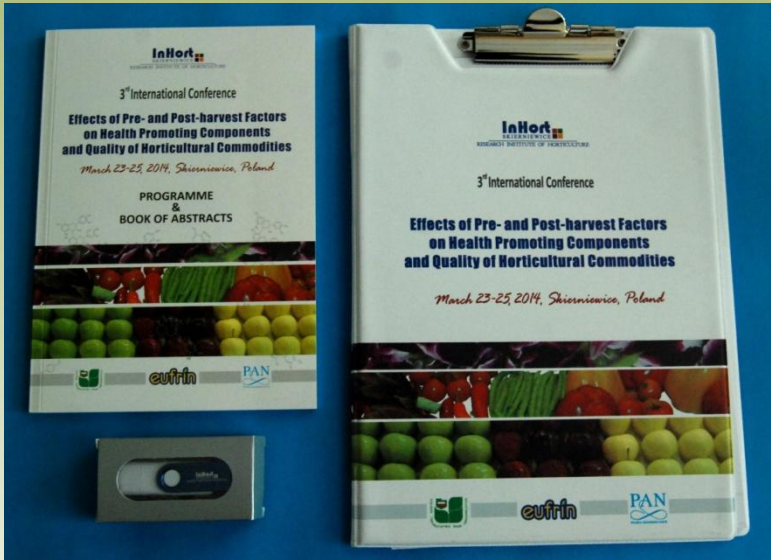
During the conference 28 oral presentations and 60 posters were presented, summaries of which are given in the book of abstracts (108 pages).



# Summary



# Summary





# Summary



**InHort**  
SKIERNIEWICE

**eufrin**

**PAN**  
POLSKA AKADEMIA NAUK

3<sup>rd</sup> International Conference

## **Effects of Pre- and Post-harvest Factors on Health Promoting Components and Quality of Horticultural Commodities**

We hereby certify that

# **ELAZAR FALLIK**

attend the Conference

held in Skierniewice, Poland, March 23-25, 2014

The Organizing Committee  
Chairman

Prof. Dr Franciszek Adamicki



# Summary



# Summary

**4<sup>th</sup> International Conference on „Effects of Pre- and Post-harvest Factors on Health Promoting Components and Quality of Horticultural Commodities”**

**April – May 2018,**

**Skierniewice,**

**Research Institute of Horticulture**



## ✓ Proposals (H2020 & TN)

- ✓ Postharvest Fruit Quality Proposal for Horizon 2020  
(with active contribution of WG members)
- ✓ WP\_5\_Postharvest (**Debbie Rees and ...**)



**Thank you for your  
attention**

**Krzysztof.Rutkowski@inhort.pl**