RESILIENT SMALLHOLDER INITIATIVE

StopMedWaste/FoodWaStop
Food Loss and Waste Postharvest

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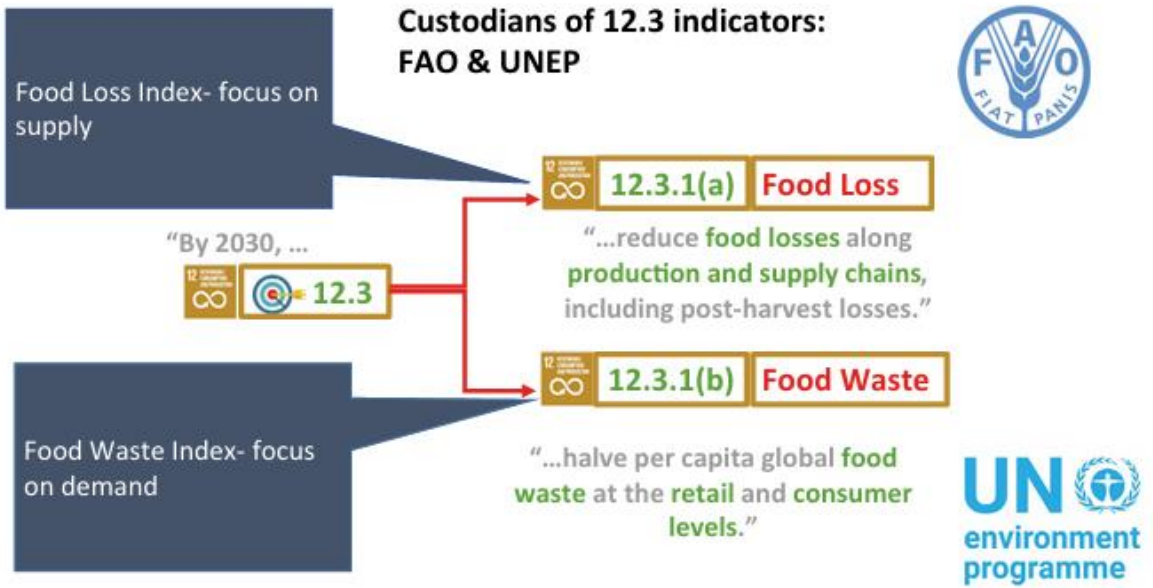
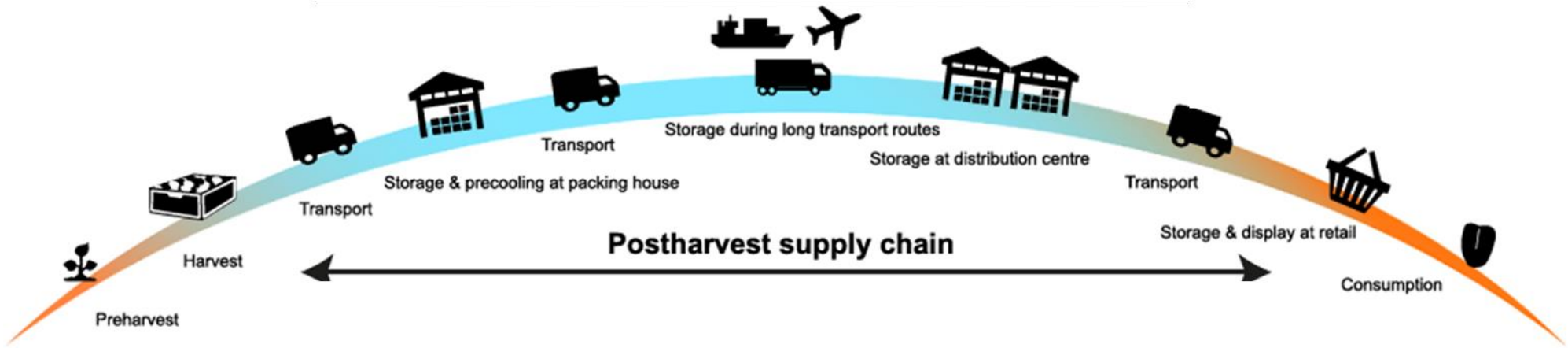
www.stopmedwaste.net - ***www.foodwastop.eu***


SUSTAINABLE DEVELOPMENT GOALS
1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS


Global food losses and waste per year
around 1/3 of the world's food is squandered, that is
1.3 billion tons of wasted food at
1 approx. trillion USD costs
IFCO
45 % of all fruit and vegetables
35 % of all fish and seafood
30 % of all cereals
20 % of all dairy products
20 % of all meat and poultry
Source I www.fao.org/save-food/resources/infographic/en/
A better supply chain serves us all. Let's eat.

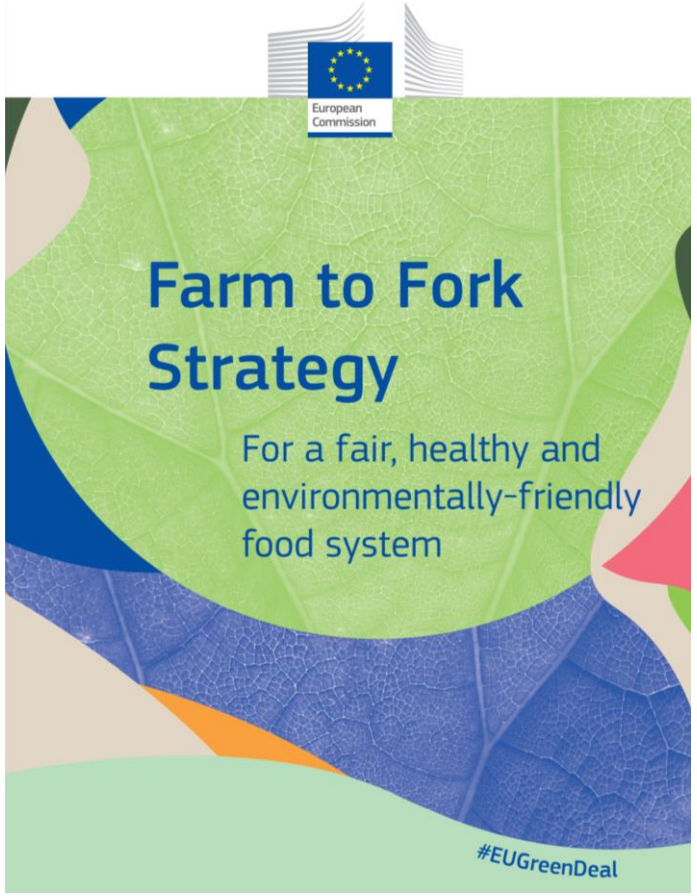

The Food Waste Iceberg
what we see
Bill at producer price:
$750 000 000 000
Bill at retail price:
$1000 000 000 000
Eroded Land
GHG Emissions
Cleared Forests
Increase in Food Prices
Increased Water Scarcity
Bill from nature:
$700 000 000 000
what we don't see
Loss of Wetlands
Loss of Biodiversity
Climate Change Damages


Custodians of 12.3 indicators:
FAO & UNEP
Food Loss Index- focus on supply
12.3.1(a) Food Loss
"By 2030, ...
12.3
"...reduce food losses along production and supply chains, including post-harvest losses."
12.3.1(b) Food Waste
Food Waste Index- focus on demand
"...halve per capita global food waste at the retail and consumer levels."
UN environment programme



13.2% of global food production

17% of global food supply



WITHIN 2030:

-50% food waste (including fresh fruit and vegetables)

-50% use of synthetic pesticides

+25% organic agriculture

molecules
MDPI

Review

Basic Substances, a Sustainable Tool to Complement and Eventually Replace Synthetic Pesticides in the Management of Pre and Postharvest Diseases: Reviewed Instructions for Users

Gianfranco Romanazzi [1,*], Yann Orçonneau [2], Marwa Moumni [1], Yann Davillerd [2] and Patrice André Marchand [2]

https://doi.org/10.3390/molecules27113484

BasicS
Euphresco Project

Abstract: Synthetic pesticides are widely used to protect crops from pathogens and pests, especially for fruits and vegetables, and this may lead to the presence of residues on fresh produce. Improving the sustainability of agriculture and, at the same time, reducing the adverse effects of synthetic pesticides on human health requires effective alternatives that improve the productivity while maintaining the food quality and safety. Moreover, retailers increasingly request fresh produce with the amounts of pesticides largely below the official maximum residue levels. Basic substances are relatively novel compounds that can be used in plant protection without neurotoxic or immune-toxic effects and are still poorly known by phytosanitary consultants (plant doctors), researchers, growers, consumers, and decision makers. The focus of this review is to provide updated information about 24 basic substances currently approved in the EU and to summarize in a single document their properties and instructions for users. Most of these substances have a fungicidal activity (calcium hydroxide, chitosan, chitosan hydrochloride, *Equisetum arvense* L., hydrogen peroxide, lecithins, cow milk, mustard seed powder, *Salix* spp., sunflower oil, sodium chloride, sodium hydrogen carbonate, *Urtica* spp., vinegar, and whey). Considering the increasing requests from consumers of fruits and vegetables for high quality with no or a reduced amount of pesticide residues, basic substances can complement and, at times, replace the application of synthetic pesticides with benefits for users and for consumers. Large-scale trials are important to design the best dosage and strategies for the application of basic substances against pathogens and pests in different growing environments and contexts.

Table 5. Examples of requests from the retailer of the amount of the Maximum Residue Level (MRL) and Acute reference doses (ARfD).

Retailer	Max. %MRL/Active Substance	Max. Sum %MRL/Sample	Max. %ARfD/Active Substance	Max. Sum %ARfD/Sample	Max. Number of Active Substances/Samples
ALDI/HOFER	70%	80%	70%	80%	3–5
ALBERT HEIJN	50%	-	50%	-	-
ASDA	80%	-	-	-	-
BILLA	100%	-	100%	-	-
DOHLA	-	70%	-	70%	3–5
EDEKA	70%	-	100%	-	5
EDEKA OWN BRANDS	50%	-	70%	-	5
GLOBUS	70%	-	70%	100%	5
LIDL	33.3%	80%	100%	-	5
KAUFLAND	33.3%	80%	50%	50%	5
NORMA	-	70%	-	70%	5
METRO	50%	80%	70%	100%	5
MIGROS	-	-	-	-	6
NETTO	70%	-	100%	-	5
REWE	50%	100%	70%	100%	5
REWE OWN BRANDS	50%	100%	50%	-	5
TEGUT	70%	-	70%	-	Max. 4 (>0.01 mg/kg)

Food and Agriculture Organization of the United Nations | UN environment programme | SUSTAINABLE DEVELOPMENT GOALS

29 September
International Day of Awareness of Food Loss and Waste

IDAFLW 2024 - Key messages

- A significant increase in the quality and quantity of accessible climate finance is needed to improve financing of projects and programs to reduce food loss and waste.
- Investments that reduce food loss and waste contribute to improving food security, reduce greenhouse gas emissions, enable healthy diets, and contribute to ensuring a future where food availability is not threatened by climate.
- Equipping value chain stakeholders with climate smart funding can contribute to achieving significant incremental impacts in mitigating GHG emissions and building resilience.
- Investing in the circular economy to reduce food loss and waste, contributes to reducing GHG emissions while generating returns for investors and benefits that outweigh the costs.
- Countries must take action to reduce food loss and waste. Profound change in the prevention and reduction of food loss and waste can only take place when countries develop and allocate sufficient human, organizational and institutional capacity to tackle the issues from production to consumption.

Innovative Sustainable technologies TO extend the shelf-life of Perishable MEDiterranean fresh fruit, vegetables and aromatic plants and to reduce WASTE

Italy Cyprus Tunisia Turkey Spain

9 Partners, 5 Countries, 2 SMEs

Participant N°	PI name	Organisation	Country
1 (**Coordinator**)	Gianfranco Romanazzi	Università Politecnica delle Marche, Ancona (UNIVPM)	Italy
2 **Partner 1**	Nikolaos Tzortzakis	Cyprus University of Technology, Limassol (CUT)	Cyprus
3 **Partner 2**	Antonio Ippolito	Università di Bari, Bari (UNIBA)	Italy
4 **Partner 3**	Mohamed Bechir Allagui	Institut National de la Recherche Agronomique de Tunisie, Tunis (INRAT)	Tunisia
5 **Partner 4**	Davide Spadaro	Università di Torino, Torino (UNITO)	Italy
6 **Partner 5**	Pervin Kinay Teksur	University of Ege, Izmir (UE)	Turkey
7 **Partner 6**	María Bernardita Pérez-Gago	Centre de Tecnologia Postcollita, Institut Valencià d'Investigacions Agràries, Valencia (IVIA)	Spain
8 **Partner 7**	Mahmut Kilic	Icachem Agro Ilac San, Adana (ICACHEM)	Turkey
9 **Partner 8**	Clara Montesinos	Decco Iberia, Valencia (DECCO)	Spain

www.stopmedwaste.net

Main objectives

Economic impacts

- Reduction of **waste** from **30%** to **15%**
- Reduction of discarded fruit by **20%**

Environmental impacts

- Reduction of **pesticides** applied postharvest by **20%**

Budget

1,009,017 €

Section II

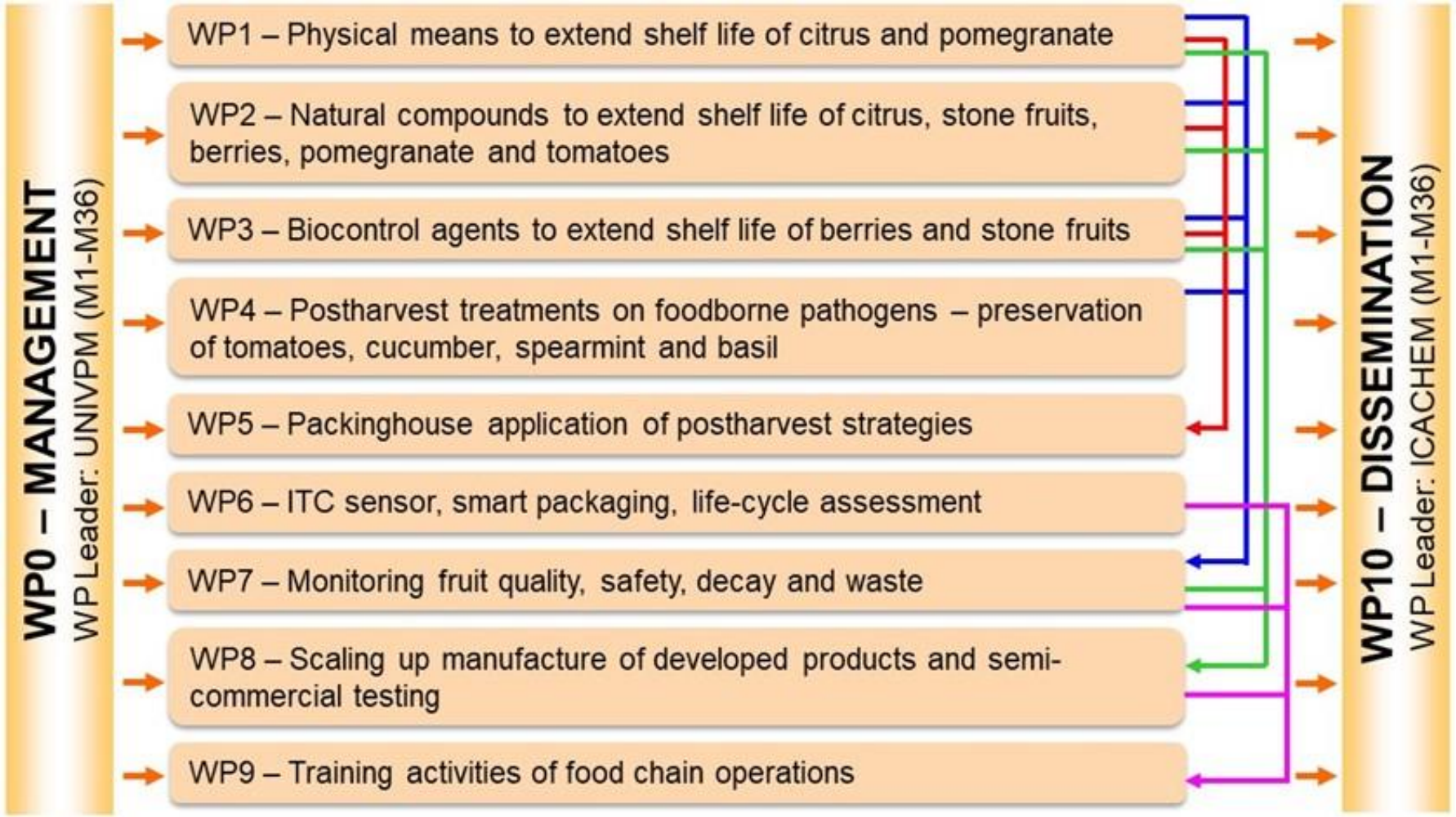
Topic - Extending shelf-life of perishable Mediterranean food products

Thematic area

Agro-food Value Chain

www.stopmedwaste.net

10 WPs, TRL 1-5 to 3-6



1 May 2020 – 30 April 2024

www.stopmedwaste.net

Available online at www.sciencedirect.com
ScienceDirect
Current Opinion in Biotechnology
ELSEVIER

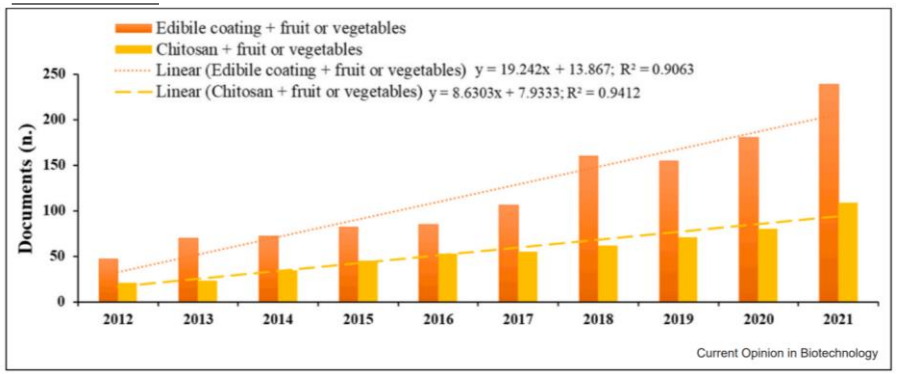
Chitosan and other edible coatings to extend shelf life, manage postharvest decay, and reduce loss and waste of fresh fruits and vegetables

Gianfranco Romanazzi and Marwa Moumni

Current Opinion in Biotechnology 2022, **78**:102834

https://doi.org/10.1016/j.copbio.2022.102834

Figure 2



Number of documents available on Scopus through searches with keywords "edible coating and fruit or vegetables; chitosan, postharvest or post-harvest and fruit or vegetables" in "Article title, Abstract, and Keywords" published over the last 10 years (
Source: Scopus, accessed on 26 June 2022; https://www.scopus.com).

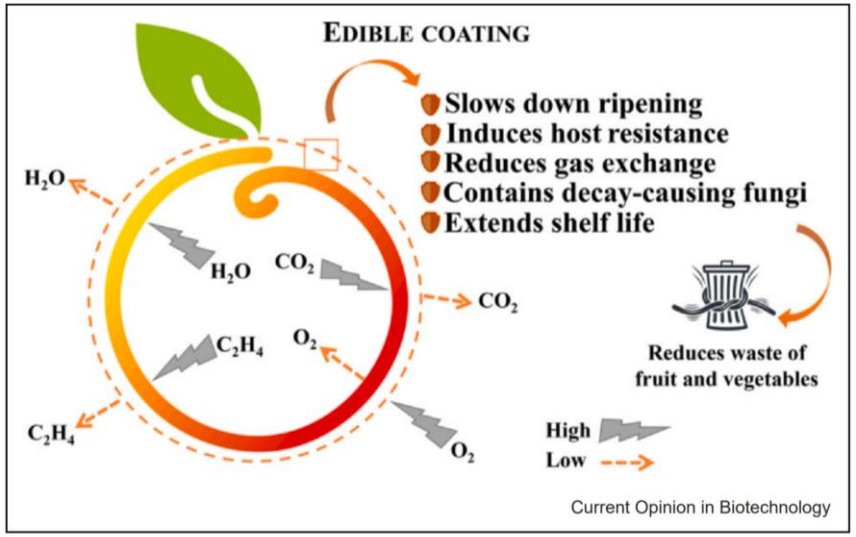
Table 2

Examples of chitosan-based commercial products that are available for the control of diseases of fresh fruits and vegetables (modified by Romanazzi et al. [17]).

Product trade name	Company (country)	Formulation	Active ingredient (%)
Chito plant	ChiPro GmbH (Bremen, Germany)	Powder	99.9
Chitosano	Agrilaete (Palmanova, UD, Italia)	Powder	100
Chitosano denso		Liquid	50
OII-YS[a]	Venture Innovations (Lafayette, LA, USA)	Liquid	2
KaitoSol	Advanced Green Nanotechnologies Sdn Bhd (Cambridge, United Kingdom)	Liquid	12.5
Armour-Zen	Botry-Zen Limited (Dunedin, New Zealand)	Liquid	14.4
Biorend	Bioagro S.A. (Chile)	Liquid	1.25
Kiforce	Alba Milagro (Milano, Italy)	Liquid	6
FreshSeal	BASF Corporation (Mount Olive, NJ, USA)	Liquid	2.5
ChitoClear	Primex ehf (Siglufjordur, Iceland)	Powder	100
Bioshield	Seafresh (Bangkok, Thailand)	Powder	100
Biochikol 020 PC	Gumitex (Lowics, Poland)	Liquid	2
Kadozan	Lytone Enterprise, Inc. (Shanghai Branch, China)	Liquid	2
Kendal Cops	Valagro (Atessa, CH, Italy)	Liquid	4
Mastgrape	Enocea (Vegrar, VR, Italy)	Liquid	5
Prevatect	Ascenza (Saronno, VA, Italy)	Liquid	5
Chitosano Serbios	Serbios (Badia Polesine, RO, Italy)	Liquid	5
Chitosano	Bioplanet Srl (Cesena, Italy)	Liquid	1.9
Chitosano DC	Dal Cin Gildo Spa (Concorezzo, MB, Italy)	Liquid	2
Ibisco[b]	Gowan Italia s.r.l. (Faenza, RA, Italy)	Liquid	15

[a] Contains 6% yucca extract.
[b] The formulation is based on an average of 12.5% of COS (chito-oligosaccharides)-OGA (oligo-galacturonides), with a chitosan concentration of 15%.

Figure 1



Main proprieties of edible coatings applied on fruits and vegetables, affecting the permeability to ethylene (C_2H_4), water (H_2O), oxygen (O_2), and carbon dioxide (CO_2).

STOP MED WASTE

Innovative Sustainable technologies TO extend the shelf-life of Perishable MEDiterranean fresh fruit, vegetables and aromatic plants and to reduce WASTE

PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

ICACHEM

DECCO More. Beautiful. Fresh.

www.stopmedwaste.net

Training activities for food-chain operators

www.stopmedwaste.net

www.stopmedwaste.net

Contents lists available at ScienceDirect
Postharvest Biology and Technology
journal homepage: www.elsevier.com/locate/postharvbio

Identification of volatile organic compounds as markers to detect *Monilinia fructicola* infection in fresh peaches

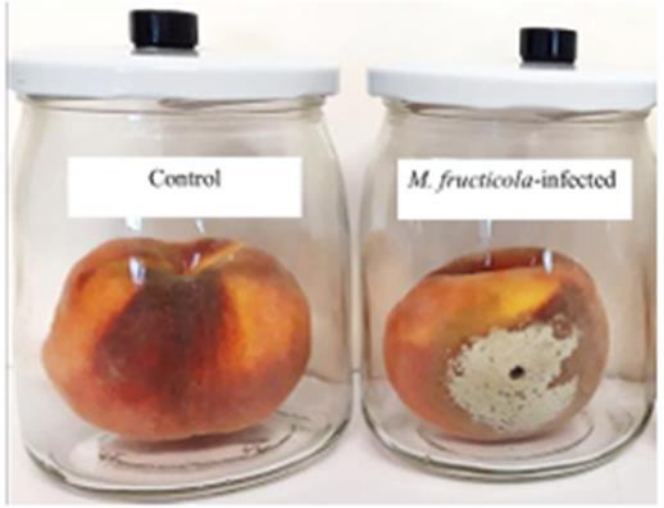
Benedetta Fanesi [a,1], Annamaria Lucrezia D'Ortenzio [a,1], Anastasiya Kuhalskaya [a], Ancuta Nartea [a], Dennis Fiorini [b], Marwa Moumni [a], Lucia Landi [a], Paolo Lucci [a,*], Gianfranco Romanazzi [a], Deborah Pacetti [a]

[a] Department of Agricultural, Food and Environmental Sciences, Polytechnic University of Marche, Via Brecce Bianche, 60131, Ancona, Italy
[b] School of Science and Technology, Chemistry Division, University of Camerino, Via Madonna delle Carceri 9/B, 62032 Camerino, Italy

https://doi.org/10.1016/j.postharvbio.2023.112581

Our results showed that in the presence of the *Monilinia fructicola* infection, the level of **hydrocarbons, lactones**, **acids**, and **methyl esters decreased**, while the concentration of **alcohols** and **ethyl esters increased**.

Development of **smart packaging technologies** (e.g., volatile indicators), facilitating infection detection and preventing other fruit from being contaminated, is still limited. In this study, we compared for the first time the aroma profile of whole healthy fresh peaches to *Monilinia fructicola*-artificially inoculated peaches, identifying discriminant volatile organic compounds (VOCs)



Induced resistance in harvested fresh fruits

Annual Review of Phytopathology

Induced Resistance in Fruit and Vegetables: A Host Physiological Response Limiting Postharvest Disease Development

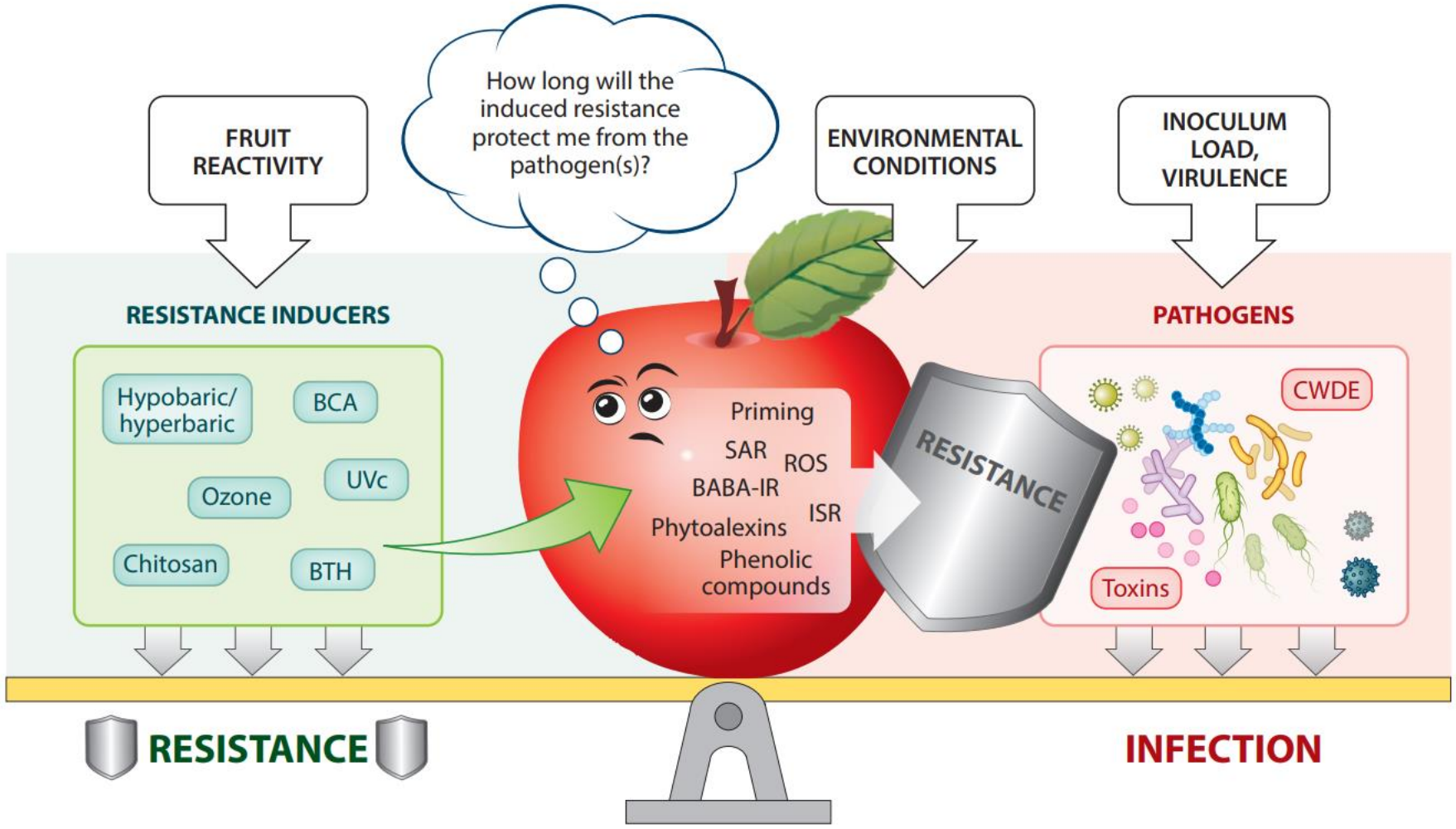
Dov Prusky[1] and Gianfranco Romanazzi[2]

[1]Department of Postharvest Science, Agricultural Research Organization, The Volcani Institute, Rishon LeZion, Israel; email: dovprusk@agri.gov.il

[2]Department of Agricultural, Food and Environmental Sciences, Marche Polytechnic University, Ancona, Italy; email: g.romanazzi@univpm.it

Annu. Rev. Phytopathol. 2023. 61:279–300

https://doi.org/10.1146/annurev-phyto-021722-035135



Innovations in Food Loss and Waste Management

Ancona, Italy, 23-25 January 2024

https://stopmedwaste.net/#postharvestancona2024

Group picture of participants from over 30 Countries, plus other connected online

Group picture with the Convener (Gianfranco Romanazzi, Chair of COST FoodWaStop), the Organising Committee (Marwa Moumni; Lucia Landi; Annamaria Lucrezia D'Ortenzio; Simone Piancatelli; Sarah M. Makau; Mehdiye Tunc), the Grant Holder Manager (Chiara Mengarelli), Vice Chair (Fernando Perez-Rodriguez), Grant Award Coordinator (Pervin Kinay), leaders of WG1 (George Karaoglanidis), WG2 (Slaven Zjalic,co-leader Lluis Palou), WG3 (Natalia Falagan, co-leaders Lise Korsten and Rosa Rolle) WG4 (Jessica Girardi), WG5 (Sandro Frati) and WG6 (Kata Mihaly, co-leader Marwa Moumni)

CA22134 - Sustainable Network for agrofood loss and waste prevention, management, quantification and valorisation (FoodWaStop)

Downloads

Description

Food loss and waste (FLW) is a global challenge recognised by international governments and organisations. Reducing FLW is key to sustainably ensure nutritional food security for an increasing world population. It is a target of the Sustainable Development Goals of the United Nations, and the Farm to Fork Strategy of the European Green Deal. The FoodWaStop COST project addresses these challenges and aims to: (i) build an interdisciplinary and multi-actor European Network that will also connect with non-EU Mediterranean countries, to promote knowledge on FLW beyond the state of the art; (ii) determine incidence of FLW in the critical points of the fruit and vegetable value chain; (iii) foster technological innovations and sustainable management strategies to reduce and prevent FLW; and (iv) valorise agrofood waste to promote a circular bio-economy. The experience of the Coordinators and Participants gained from other related projects (e.g., PRIMA, H2020), the background from diverse EU and extra-EU countries, and the involvement of stakeholders and industry partners will contribute to increase awareness of this problem, to determine its incidence, to seek strategies for its management through exploitation of the potential of innovative technologies, and to define good practices to prevent FLW. The FoodWaStop Network will provide benefits to various stakeholders and end-users, including all actors in the agrofood value chain, from farmers (Farm) to consumers (Fork). Moreover, FoodWaStop will create a knowledge platform that will promote innovation, deliver guidelines, and favour dialogue with policymakers, to focus their attention on the social and economic implications of FLW.

Action keywords

Agrofood waste - Euro-Mediterranean knowledge hub - Sustainable food management - Circular bio-economy - Socio economic empowerment of smallholders

Action Details

- **MoU** - 044/23
- **CSO Approval date** - 12/05/2023
- **Start date** - 21/09/2023
- **End date** - 20/09/2027

How can I participate?

- Read the Project Description MoU
- Inform the Main Proposer/Chair of your interest (email)
- Apply to join your Working Groups of interest
- Please note, Management Committee nominations are carried out through the COST National Contact Points

Kick-off meeting – Bruxelles, 21 September 2023

https://www.facebook.com/profile.php?id=61551787798541

600 Working Group Members

60 Countries

Country	Number of applicant
Albania	10
Algeria	1
Armenia	2
Australia	1
Austria	3
Azerbaijan	1
Belgium	7
Bosnia and Herzegovina	6
Brazil	1
Bulgaria	7
China	2
Colombia	1
Croatia	9
Cyprus	2
Czech Republic	4
Denmark	2
Egypt	2
Estonia	1
Finland	1
France	6
Georgia	1
Germany	6
Greece	20
Hungary	6
India	1
Iran	1
Ireland	9
Israel	3
Italy	43
Jordan	1
Kenya	1
Kosovo	12
Latvia	4
Lithuania	10
Luxembourg	3
Malta	1
Moldova	2
Montenegro	4
Morocco	3
Netherlands	2
North Macedonia	12
Norway	3
Pakistan	1
Poland	15
Portugal	28
Romania	8
Serbia	38
Slovakia	2
Slovenia	3
South Africa	2
Spain	33
Sri Lanka	1
Sweden	3
Switzerland	3
Tunisia	5
Türkiye	216
Ukraine	2
United Kingdom	10
United States	2

Survey on household food waste COST Action CA22134 FoodWaStop

Dear respondents, we are grateful in advance for the time you will dedicate to completing this survey. Each questionnaire is strictly anonymous, so we ask you to answer by reporting what actually happens within your family unit.

Food loss and waste (FLW) is a global challenge recognised by international governments and organisations. Reducing FLW is key to sustainably ensure nutritional food security for an increasing world population. It is a target of the Sustainable Development Goals of the United Nations, and the Farm to Fork Strategy of the European Green Deal. The FoodWaStop COST project addresses these challenges and aims to: (i) build an interdisciplinary and multi-actor European Network that will also connect with non-EU Mediterranean countries, to promote knowledge on FLW beyond the state of the art; (ii) determine incidence of FLW in the critical points of the fruit and vegetable value chain; (iii) foster technological innovations and sustainable management strategies to reduce and prevent FLW; and (iv) valorise agrofood waste to promote a circular bio-economy. The experience of the Coordinators and Participants gained from other related projects (e.g., PRIMA, H2020), the background from diverse EU and extra-EU countries, and the involvement of stakeholders and industry partners will contribute to increase awareness of this problem, to determine its incidence, to seek strategies for its management through exploitation of the potential of innovative technologies, and to define good practices to prevent FLW. The FoodWaStop Network will provide benefits to various stakeholders and end-users, including all actors in the agrofood value chain, from farmers (Farm) to consumers (Fork). Moreover, FoodWaStop will create a knowledge platform that will promote innovation, deliver guidelines, and favour dialogue with policymakers, to focus their attention on the social and economic implications of FLW.

There are 16 questions in this survey.

To join the survey scan QR code

Food Waste Questionnaire

Country	Participants
Albania	18
Algeria	4
Andorra	1
Australia	1
Austraia	2
Belgium	2
Bosnia and Herzegovina	17
Brazil	1
Bulgaria	37
Croatia	3
Cyprus	3
Czech Republic	15
Denmark	2
Egypt	1
Ethiopia	1
Faroe Islands	1
Finland	1
France	4
Georgia	2
Germany	15
Greece	36
Hungary	6
India	3
Israel	1
Italy	50
Kosovo	10
Latvia	23
Lebanon	1
Lithuania	10
Macedonia	6
Moroco	1
Netherlands	2
North Macedonia	8
Norway	1
Palestine	1
Poland	20
Portugal	89
Romania	1
Serbia	26
Slovakia	1
South Africa	1
Spain	23
Sweden	2
Switzerland	1
Tunisia	6
Turkey	46
USA	2

508 Participants

47 Countries

Second COST CA22134
FoodWaStop meeting
4-5 March 2025 - Cordoba, Spain

Application to be supported by COST in joining the meeting

Thanks for your attention