The PRIMA programme is supported under Horizon 2020 the European Union's Framework Programme for Research and Innovation

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

StopMedWaste

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STOPMEDWASTE

StopMedWaste is a project of 3-years duration, aiming for the preservation of perishable fresh fruit, vegetables and aromatic plants with innovative strategies that ensure consumer's safety, reduction of agricultural products waste, as well as reduction of synthetic pesticides application. These strategies will be tested under semi-commercial or commercial conditions (in packing houses), monitoring the quality of the fresh produce during transportation, after they have been first assessed under laboratory conditions.

StopMedWaste focuses on the reduction of food waste from 30% to 15% (in Agreement with the United Nations Priorities, the ZeroHunger Challenge), the reduction of discarded fruit by 20%, as well as the reduction of pesticides applied postharvest by 20%.

Main objectives

The main objectives of the StopMedWaste project include: **1)** the **preservation of perishable Mediterranean fresh fruit, vegetables and aromatic plants using innovative strategies** such as the application of physical means (gaseous ozone, ozonated water, electrolysed water), natural compounds (chitosan, essential oils, antifungal edible coatings) and biocontrol agents, **2)** the **application of protocols and conditions** (performed at a laboratory scale), **in semi-commercial or commercial conditions** (in packing houses), with monitoring of the quality of the fresh produce during transportation by information and communication technology (ICT) devices with remote control, **3)** the **development of smart packaging** for monitoring fruit quality during transportation, **4)** the **quantification of efficacy and efficiency as well as waste production** of applied treatments on shelf-life of perishable fresh fruit (e.g., table grapes, citrus fruit, stone fruit, strawberries, raspberries, pomegranates), vegetables (e.g., tomatoes, cucumbers) and aromatic plants, **5)** the **monitoring of the applied treatments effects on foodborne pathogens**, **6)** the **evaluation of the environmental sustainability of the applied technologies** (by means of life-cycle assessment), and **7)** the **transfer of knowledge** (gained from laboratories and packing houses) **to the sector and food-chain operators** through **training activities**.

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Expected impacts

The expected impacts of **StopMedWaste** project regarding economic, environmental and social effects are presented below:

1. Economic impacts
   a. The increase of innovation levels in the sectors of Mediterranean fruit agro-food chains through adoption of simple and innovative solutions for existing problems.
   b. The optimization in logistics for food storage and distribution at local and transnational levels (higher incomes for small holders and SMEs).
   c. The improved sustainability of agri-food smallholders, SMEs and other companies (creation of new international markets boosting new business and opportunities of development at the national and Mediterranean levels).
   d. The strengthened competitiveness and profitability of the region smallholders and SMEs, in line with Mediterranean values, heritage and biodiversity.
   e. The decrease of fresh fruit, vegetables and aromatic plants processing waste production (from 30% to 15%), and improved use of existing resources.
   f. The reduction of costs for producers and consumers.
   g. The increased Mediterranean market share in eco-innovative solutions for fresh fruit, vegetables and aromatic plants.
   h. The reduction of losses in food chains by strengthening the food sector.
   i. The linking of StopMedWaste findings with other European, Mediterranean and national projects.

2. Environmental impacts
   a. The reduction of the environmental footprint of postharvest operations (with positive impacts on climate change).
   b. The minimization of synthetic (polluting) fungicides use that endanger both human health (chemical residues on/in fruit) and the environment (reduced by 20%).
   c. The decrease in perishable fruit loss through improved shelf-life (increase the sustainability of the horticultural sector, and to reduce discarded fruit by 20%).
   d. The valued plant resources and Mediterranean values, heritage and biodiversity.

3. Social impacts
   a. The improvement of consumer's confidence in Mediterranean perishable fresh fruit, vegetables and aromatic plants.
   b. The strengthening of food security (offering safe and high quality fresh fruit, vegetables and aromatic plants to consumers).
   c. The creation of opportunities for product diversification, innovation and valorization (consequently promoting job creation for SMEs and smallholders).
   d. The implementation of solutions to trace quality, highest grade of freshness and nutritive added-value for fresh products.
   e. The creation of stable jobs in the sectors of fresh fruit, vegetables and aromatic plants production and processing, as well as in associated sectors (e.g., marketing of fresh innovative products).
   f. The integration amongst producers', retailers' and consumers' associations in a changing social, economic and environmental scenario.

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Benefits

The benefits that will result from the completion of the StopMedWaste project include:

1. The improvement of the efficacy and efficiency of processing and storage of fresh produce, resulting in food products with longer shelf-lives and greater microbial stability.
2. The improvement of the food-chain sustainability, using alternative agro-food processes or tools that are focused mainly on meat and vegetable production.
3. The optimization of food storage and distribution logistics (local and transnational levels), which will result in higher incomes for small holders/ SMEs.
4. The reduction of fresh produce losses and possible income increase for growers.
5. The production of high quality (free of synthetic fungicides residues) fresh produce (fruit, vegetables and aromatic plants) supplied to food-chain operators, retailers and consumers.
6. The support of the decision-makers (i.e. growers, food-chain operators, stakeholders and consumers) through the dissemination of the project's outcomes.

Work packages

The **StopMedWaste** project consists of 11 working packages (WP) as named below:

WP0. Management, coordination and quality control.

WP1. Use of physical means to extend shelf-life of fruit, vegetables and aromatic plants, and reduce waste.

WP2. Use of natural compounds to extend shelf-life of fruit, vegetables and aromatic plants, and reduce waste.

WP3. Use of biocontrol agents to extend shelf-life of strawberries and stone fruit

WP4. Effects of postharvest treatments on foodborne pathogens.

WP5. Application of physical means, natural compounds and biocontrol agents in commercial packing houses.

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WP6. Use of ICT sensors and smart packaging to monitor parameters and fruit quality during storage, transportation and shelf-life, and life-cycle assessment of applied strategies.

WP7. Monitoring of fresh produce quality, safety, decay and waste during shelf-life.

WP8. Scaling up manufacture of the products developed during the Project and testing them under semi-commercial conditions.

WP9. Training activities for food-chain operators.

WP10. Dissemination, communication and exploitation of results.

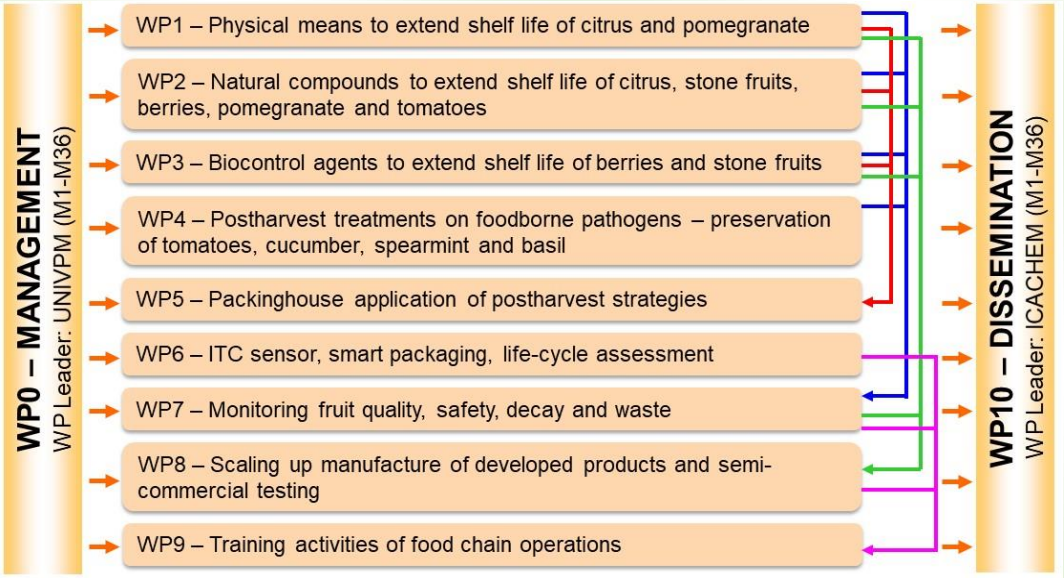

Figure 1. The conceptual approach of StopMedWaste.

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