



LIFE Zero Residues - LIFE Zero Residues:
towards a sustainable production and supply
chain for stone fruit

LIFE12 ENV/ES/000902



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Project description:

Background

Pesticide residues in the local environment - air, soil and surface water - affect the lives of birds, wildlife, domestic animals, fish, livestock and humans. Human health hazards vary with the type of pesticide and also with the extent of exposure. Moderate human health hazards from pesticides include mild headaches, flu, skin rashes, blurred vision and other neurological disorders. Severe, but rare, human health hazards include paralysis, blindness, and even death (Wilson & Otsuki, 2002).

A large number of studies (e.g.: Repetto & Baliga, 1996; Whalen, 2002; and Women's Health Initiative Observational Study, 2009) show that exposure to pesticides – particularly long term - can damage the human immune system by reducing the number of white blood cells and disease-fighting lymphocytes. Long-term health impacts can include cancer, infertility, miscarriage, male sterility, birth defects, and effects on the nervous system. Farm workers are at much greater risk of toxicity due to increased exposure to pesticides. Risk of birth defects is reported with certain pesticides, particularly, the herbicide 2,4-D used on farmland (Garry et al., 1996).

Due to recent food scandals, consumers are increasingly concerned about product quality and are demanding healthier foods. Supermarkets are responding to this demand and sourcing food from more sustainable production systems. Low-residue production methods are widely available for vegetables and often demanded by retailers. However, for stone fruit there are currently no

such methods. Furthermore, organic (eco), fresh produce is still an expensive option compared to conventional produce, due to high production and logistical costs.

Objectives

The LIFE Zero Residues project aims to improve sustainability and quality in the stone fruit supply chain. It specifically hopes to develop a zero-residue production method for stone fruit, achieving supply-chain improvements - including in processing and post-harvest conservation – and increasing consumer demand for such products. In this way, the project aims to improve the competitiveness and green credentials of the sector.

To achieve the project aims, the beneficiary will implement several interrelated actions, including:

- The implementation of integrated pest management in stone fruit production - drastically reducing pesticide doses, soil degradation and groundwater pollution;
- High-pressure processing – pascalisation - of the waste fruit created by quality imperfections - for valorisation in profitable new markets, such as for baby food;
- Applying innovative micro-perforated packaging and controlled atmosphere storage solutions - for increased post-harvest shelf life, easier logistics and to avoid waste down the supply chain;
- Conducting relevant market studies, test panels, active marketing through social media, and promoting actual sales in supermarkets – demonstrating and contributing to increasing demand for these products.

The project will undergo a zero-residue certification process to ensure efficient and consistent production methods, whereby disruptions, delays and associated costs are minimized. The methodology will secure the same or better fruit quality than conventional methods, and ensure visual acceptance by consumers. It ultimately hopes to promote both the supply of, and demand for, zero-residue stone fruits, setting a new trend in (stone) fruit production.

Expected results:

- Achievement of external certification for a zero-residue production process for stone fruit;
- 75% of the harvest realised in the project to comply with the objective of zero residues (< 0,01 mg/kg of any detectable residue);
- Decrease of residual chemicals in the soil by 20% at end of the project, compared to the situation at the beginning of the project;
- A 20% increase in the shelf-life of the resultant fruit, compared with conventionally produced and packaged fruit;
- The ZR products to be sold at a 10% premium compared to the conventionally produced products;
- Successful pascalisation of 80% of discarded fruit and proven interest from baby-food manufacturers.

Results

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Environmental issues addressed:

Themes

Risk management - Human health protection
Industry-Production - Agriculture - Forestry

Keywords

public health, human exposure to pollutants, agricultural method, waste reduction, horticulture

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	UNIVERSIDAD DE ZARAGOZA
Type of organisation	University
Description	The plant foods research group of the University of Zaragoza specialises in research aimed at improving quality and added value in the horticultural sector. It has particular expertise in post-harvest technologies, and low-impact decontamination procedures for the sanitation and preservation of fruits and vegetables.
Partners	Chez Pascal B.V., The Netherlands Finca Valleduz S.L., Spain Lafuente Tomey S.L., Spain Fundación Parque Científico Tecnológico Aula Dei, Spain Seipasa S.A., Spain Top B.V., The Netherlands Transfer Latin Business Consultancy S.L., Spain ZERYA Producciones sin Residuos S.L., Spain

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Administrative data:

Project reference	LIFE12 ENV/ES/000902
Duration	01-JUL-2013 to 30-JUN -2017
Total budget	3,445,458.00 €
EU contribution	1,635,232.00 €
Project location	Aragón(España),Comunidad Valenciana(España)

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