

# EIP Operational Group FruitCare – Development of strategies for the substitution of PPPs on stone fruit, berries and table grapes

CAP funds in Spain help design and promote sustainable, non-chemical, agricultural production practices as alternatives to Plant Protection Products.

## EAFRD-funded projects

**Location:** Murcia, Spain

**Programming period:** 2014–2020

**Priority:** P2 – Competitiveness

**Focus Area:** Farm performance, restructuring & modernisation

**Measures:** M16 – Cooperation

<b>Funding:</b>	RDP support	599 636 (EUR)
	EAFRD	479 709 (EUR)
	National/Regional	119 927 (EUR)

**Timeframe:** 01/01/2020– 15/07/2021

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## Summary

The European Commission established a list of active substances for substitution (Regulations (EU) 2015/408 and 2020/1740) which includes active substances commonly used in agricultural Plant Protection Products (PPPs) like Pirimicarb, Tebuconazole, etc. Over four years, 72% of the 970 active substances used as PPPs were withdrawn from the market. Replacing these substances will help reduce the environmental impact of agriculture and provide greater guarantees for human health, as well as reduce farmer worries about food loss and income threats. This has a significant impact on the products used for plant protection and the applications. The EIP Operational Group FruitCare was established to determine the most effective modifications to the production process in stone fruit, berries and table grapes and the best PPP replacement procedure.



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## Project results

- The ten substitution protocols designed in the FRUITCARE project reduced the use of the selected Candidate for Substitution (CfS) active ingredients by 100%.
- The post-harvest technologies used allowed shelf life of stone fruit and berries to be extended by more than 20%.
- The project has demonstrated that the alternative strategies to CfS are feasible both technically and economically.

## Key lessons and recommendations

- Challenges involved with replacing PPPs can also bring opportunities, such as the generation of positive synergies between farmers, new replacement programmes and new tools for farmers that help increase their sustainability and competitiveness.
- Emphasis should be placed on tailoring PPP alternatives to suit the characteristics and requirements of each crop and geographical area.



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## Context

The European Commission established a list of active substances for substitution (Regulation (EU) 2015/408), to the extent possible, in order to reduce the environmental impact of agriculture and provide greater guarantees for human health. This list includes active substances commonly used in agricultural Plant Protection Products (PPPs) like Pirimicarb, Tebuconazole, etc. To secure the viability of the list's application, it is important to assume a proactive role and generate reliable alternatives, plan their implementation and, ultimately, disseminate them to farmers and technicians, raising their awareness and technical competence. Some manufacturers already chose not to renovate their registrations and gradually withdraw certain products from the market.

When considering the need for this project, Germany had already performed a similar assessment in which the impact of these changes and European guidelines was determined. They concluded that it could affect 350 products and 1 850 uses, which represented 25% of the products and 50% of the applications. Considering their data, an average CfS is approved for 18 different uses, with alternative products existing for 40% of them. However, for 61% of such uses there were no alternatives and the rest have seven alternatives on average. The successive suppressions of PPPs cause farmers to feel increasingly limited on treatment choices, creating concern and distress. Over four years, 72% of the 970 active substances used as PPPs were withdrawn from the market. These figures showed the project initiators the importance of determining the proficient practices in each crop and ensuring that the best PPP substitution strategy is clear.

## Objectives

The aims of this EIP project are to:

- Reduce by 100% all use of selected active substances (tebuconazole, difenoconazole, fludioxonil) in stone fruit, berries, and table grapes, by testing pre- and post-harvest strategies with less impact.
- Increase the competitiveness of the fresh fruit industry, anticipating the adoption of European requirements by farmers, through new pre- and post-harvest strategies for the substitution of CfS active substances.
- Select the most sensitive PPPs based on their impact and which will be the target of the project. With this purpose, trinomial pathogen-active material-crop would be identified according to producer and geographical area through the initial survey of the crops.



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## Activities

The project activities included:

Activity 1: Conducting an impact assessment of the eventual elimination of CfS active substances on the MAPA's (Spanish Ministry of Agriculture) registry of phytosanitary products. This activity involved:

- Identifying and classifying the active substances to be replaced.
- Selecting plots of each crop in the different areas.
- Evaluating the relevance of the identified PPPs and selecting sensitive substances (this included the design of the tests of the alternatives).



Activity 2: Assess different substitution strategies in pre-harvest through:

- Applying strategies based on the use of biocidal substances of natural origin or PPPs not listed as CfS (preferably substances exempt from MRL).
- Applying other farming practices or techniques.

Activity 3: Application of low-impact post-harvest technologies by:

- Designing of protective atmospheres (packaging in modified atmospheres and conservation in controlled atmospheres) adjusted to each product.
- Combining biocontrol treatments with edible coatings for post-harvest.
- Testing advanced oxidation technologies in stone fruit by oxidative photocatalysis (this included the use of low-environmental impact fruit disinfection technologies).

Activity 4: Evaluating alternative strategies (environmental and socioeconomic impact of the project).

Activity 5: Disseminating and promoting the substitution programmes developed. The project installed demonstration plots throughout Spain covering some of the most relevant crops in these regions (strawberries and raspberries in Huelva, table grapes in Alicante, stone fruit in Badajoz and Huesca). These plots were used to test alternatives for the targeted PPPs identified by the project. Thus, providing local and regional farmers with evidence of the alternative's efficacy in real conditions, demonstrating the adaptation to the local soil and weather conditions, as well as the cultivars and pathogen biology.

## Main results

- The project contributes to the reduction of the environmental footprint of agriculture by reducing the use of phytosanitary products. More than ten protocols for the substitution of active materials have been designed with good efficacy results in preventive applications.
- The substitution protocols reduce the use of selected CfS active ingredients by 100%.
- The post-harvest technologies used allowed the shelf life of stone fruit and berries to be extended by more than 20%, thus achieving a strategy combined with the use of products without residues in preharvest.

- Biodiversity conservation: more than 50% of the insect families identified in the entomofauna study have been auxiliary fauna (beneficial).
- The project has contributed to the creation of a dissemination strategy and to the future growth of farms with replacement programmes.
- The project has demonstrated that alternative strategies to CfS are feasible both technically and economically.
- The project's commitment to raising awareness and dissemination continues to be in force by keeping all the technical data available on its website.

## Key lessons and recommendations

- Challenges involved with replacing PPPs can also bring opportunities, such as the generation of positive synergies between farmers, new replacement programmes, and new tools for farmers that help increase their sustainability and competitiveness.
- This project underscored the importance of designing and promoting sustainable, non-chemical, preventive and curative production practices as alternatives to PPPs.
- Emphasis should be placed on tailoring alternatives to PPPs practices to suit the characteristics and requirements of each crop and geographical area.

## Additional information:

Website - <https://fruitcare.eu/>

YouTube - [www.youtube.com/watch?v=4mH8NQzG3jU](https://www.youtube.com/watch?v=4mH8NQzG3jU)  
[www.youtube.com/watch?v=ITcaBwxedIA](https://www.youtube.com/watch?v=ITcaBwxedIA)

GRUPO OPERATIVO PARA LA SUSTITUCIÓN  
DE PPPs EN FRUTA DE HUESO, FRUTOS  
ROJOS Y UVA DE MESA.

