



## LOCATION



Spain

## PARTNERS



## 3.3

# Pest Management Control on Fruit Fly

## CHALLENGE

The Mediterranean fruit fly (*Ceratitis capitata*) is a dangerous pest for a wide range of distribution and host plants. A key challenge is how to deal with agricultural pests like fruit flies while reducing the use of chemical treatments. Currently traps are used and serviced manually each week. Captures are classified individually in the lab into sterile and wild flies. Sterile male flies are then released into the field to mate with wild females. No progeny will be produced and the wild population will decrease after several generations. However, the manual work involved is costly and time-consuming.

## AIM

This pilot aims to optimise the release strategy of sterile male fruit flies by collecting enough field data in an efficient way.



## HOW

The pilot will test the use of automatic traps that capture the fruit flies and sensors that detect when insects are inside the trap. The automatic trap will take real-time images of the captures. These images are sent to a server and based on machine learning approaches, the captures will be counted and identified as wild and sterile.

## BENEFIT

The main benefit of this pilot project is achieving a more precise method to manage fruit fly control programs. Real-time capture data will allow improvements to be made to the release strategy of sterile males, thus reducing the occurrence of the pest over time. The automatic counting traps will result in a reduction in time, effort and cost associated with servicing the traps. Furthermore, real-time data will be sent to farmer relating to the status of the pest in the field.





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Atos

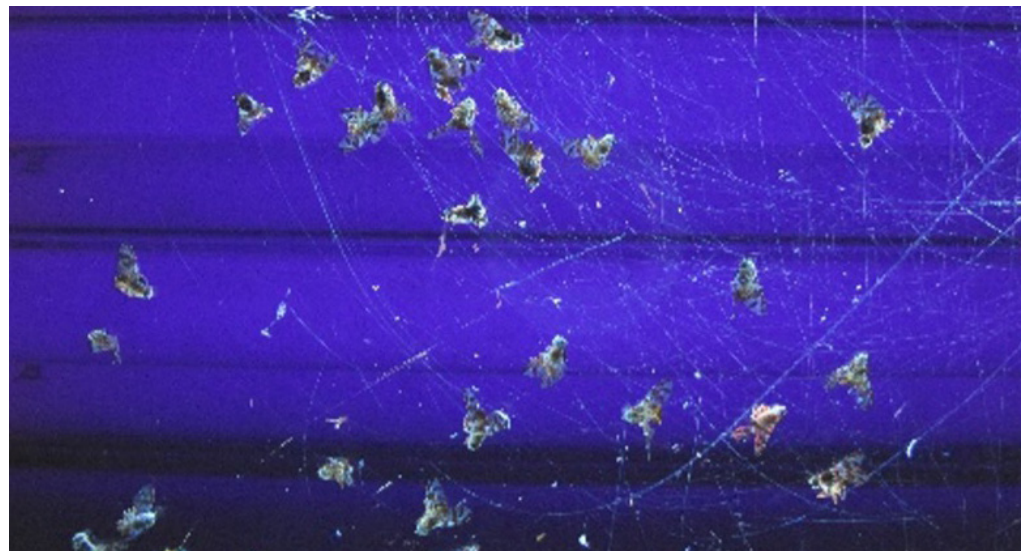


### DEMETER Integration

Pilot 3.3 has benefited from several components developed within the DEMETER project. These advanced DEMETER enablers (Pattern Extraction with computer vision and Pest Estimation with Sterile Fruit Flies) are virtualized, deployed and integrated in DEMETER infrastructure by means of the Access Control Enabler (ACS), DEMETER Enabler Hub (DEH) and Brokerage Service Environment (BSE). The results of the processed data are shown to the final user through the Adaptive Visualization Framework Hub (Knowage) making usage of the Agriculture Information Data Model (AIM) on which DEMETER bases its interoperability.

### Feedback From Farmers

Five farmers are directly involved in the pilot, however since the network of automatic traps and the image recognition system developed in the pilot are managed and used by technicians related to the Valencian Council, the indirect impact will be seen by a large number of farmers and owners of citrus crops in the entire Valencian Community.



### Outcomes

The solutions developed allow cost savings and a significant reduction in the carbon footprint, preventing each inspector from traveling around 3,000 km per month. In addition, they allow better monitoring, traceability and evolution of the pest, as they will know the times of maximum activity of the flies in the field. This information varies throughout the year and is vital to determine the most appropriate hours to carry out the release of sterile males and other support actions, all with the aim of optimizing the effectiveness of the program for the integrated fight against the Mediterranean fly in the Valencian Community.

