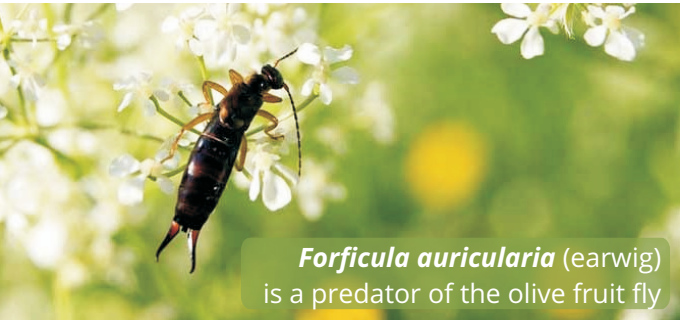




THE PREDATORS

They are insects that hunt and feed on other (largely harmful) insects.



Forficula auricularia (earwig) is a predator of the olive fruit fly

THE PARASITOIDS

They are insects whose larvae feed and grow on or inside other insects which they end up killing.



Eurytoma martelii is a parasitoid of the olive fruit fly

Source:
Junta de Andalucía

THE PATHOGENS

They are microorganisms that can potentially be harmful to other insects.



Bacillus thuringiensis is a pathogen of the olive moth

DID YOU KNOW THAT...

it is estimated that during the 2020 agricultural campaign, around **30.000 million insects** were released in the greenhouses of Almeria and Granada (Spain) ?

Nowadays, European consumers who are receiving these foods perceive a **greater security** and **feel part of the transition towards a more sustainable agricultural model**.

extra info

the good practices

THE ENEMIES OF PESTS



THE RESULTS OF SUSTAINOLIVE

SUSTAINOLIVE.EU

THE CHRYSOPIIDS

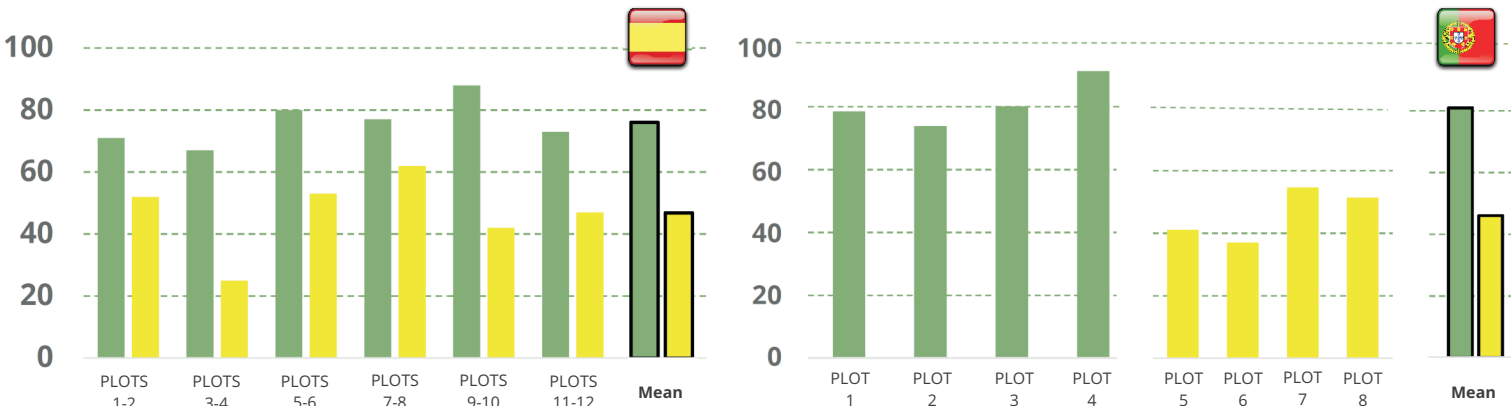
Green lacewings (*Chrysoperla sp.*) are fragile insects with a costal field located in the veins of their wings, carrying the cross-veins. The bodies are usually greenish-brown to bright green, and the compound eyes are conspicuously golden in many species. The wings are usually translucent with a slight iridescence; some have green wing veins or a cloudy brownish wing pattern.

They are largely found in Mediterranean olive groves where they hold an **important function**, namely **devouring species of common olive grove pests**, such as the **olive moth** (*Prays oleae*) and the **cochineal** (*Saissetia oleae*).



Chrysoperla carnea on herbaceous cover of olive grove

Source: Blog Control Biológico



Percentage of olive moth (*Prays oleae*) eggs in the carpophagous generation predated by lacewings across various SUSTAINOLIVE experimental olive groves in Spain and Portugal

More sustainable olive groves Less sustainable olive groves

BE AWARE THAT...

Some insects can develop several generations in a single season



phyllophagous generation: affect olive leaves



anthophagous generation: affect olive flowers



carpophagous generation: affect olive fruits



The lowest rates of predation of *P. oleae* eggs were detected in the least sustainable olive groves (30% less in Spain and 34% in Portugal). In the Spanish case, the explanation to this difference is based on 2 factors: the absence of herbaceous cover and the **use of insecticides**, jointly resulting in a **higher mortality of adults and larvae of lacewings**.

The presence of herbaceous cover in some of the least sustainable olive groves (especially in Portugal) indicates to insecticides as the main negative factor.



The presence of herbaceous cover in the most sustainable olive groves implies the existence of **adequate habitats for natural enemies** of *P. oleae* and other harmful species.

KEEP IN MIND THAT...

any agronomical practice in the olive groves favoring the existence of adequate habitat conditions for the natural enemies of pests can be considered as a **"natural insecticide"**. Such adequate habitat conditions include the absence of phytosanitary products, the presence of an herbaceous cover, the shredding of pruning leftovers, tillage reduction, intercropping practices and the maintenance of patches of native plant species. It is now urgent to **overcome frequent prejudices** and give a chance to the multiple **free services delivered by nature**, setting aside the unnecessary use of agrochemicals that derive both financial costs and health risks for the olive farms, ecosystems, farmers and consumers.

extra info