



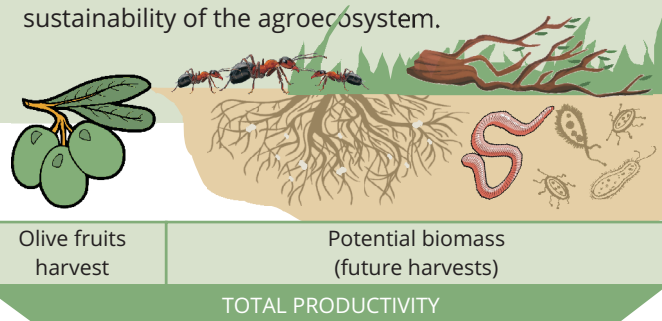
# THE PRODUCTIVITY OF OLIVE GROVES



## TWO OPPOSING APPROACHS

The **PRODUCTIVITY** of an agroecosystem is defined as the total amount of biomass produced per units of time and area. Accordingly, the productivity of any crop should not only involve the biomass that results in an shorter-term economic return (fruits and seeds) but also the biomass in leaves, trunks, branches, roots, and even in soil microorganisms.

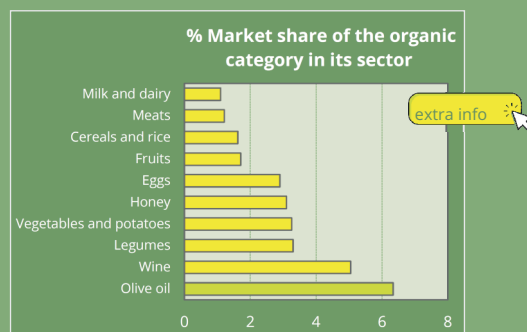
In general, the olive agro-industry mainly focuses in maximizing the amount of olives harvested, too often at the expense of **the medium and long-term benefits** of increasing the overall **levels of biomass**, which will bear a positive effect on future harvests and the sustainability of the agroecosystem.



Unfortunately, **prejudices** are in place indicating that olive groves that allocate part of their resources to improving biomass sources other than olives become less productive and, therefore, less profitable. The truth is that **everything depends on the eye of the beholder**.

## DID YOU KNOW THAT...

EVOO was the food product on the Spanish market that achieved in 2016 the largest market share within the "organic" category?



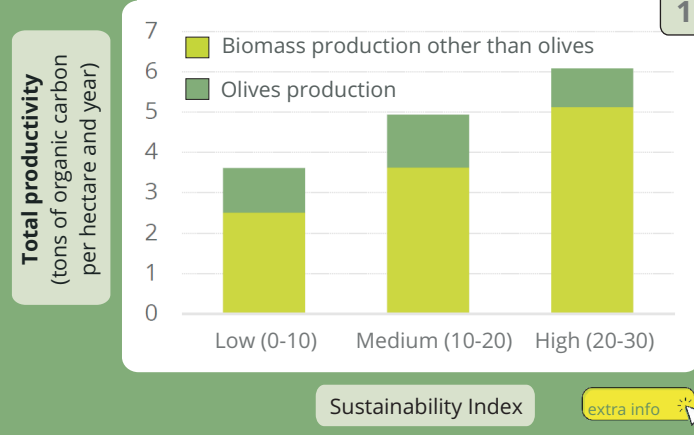
Gradually, an increasing number of consumers do not mind to pay extra money for an environmentally friendly and toxic-free EVOO. So it is not surprising that the number of organic olive groves is consistently increasing along recent years.

## AN INVESTMENT FOR THE FUTURE

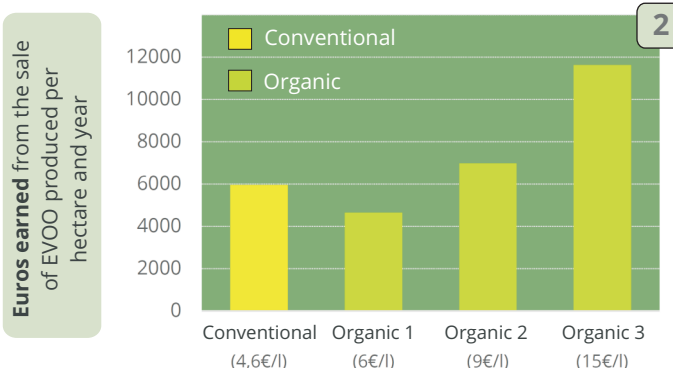
In the SUSTAINOLIVE experimental olive groves in Spain, it was observed how **the total productivity of the agroecosystem increases** with the diversity of management practices that confer sustainability (graph 1). Actually **the greatest differences in sustainability standards are not explained by the model production of olives** but by the production of biomass. It is thus clear that sustainable practices render olive groves with future-proofed harvests via an improvement of the structure and fertility of the soils and the ability to withstand disturbances.



We all know what a liter of EVOO is worth, but... how much is a kilogram of soil worth that is prevented to be lost after rain? How much is a kilogram of insects worth that will help the farmer to prevent the proliferation of the olive fruit fly? Or... how much is a kilogram of grass roots worth that improves soil ability to retain water?



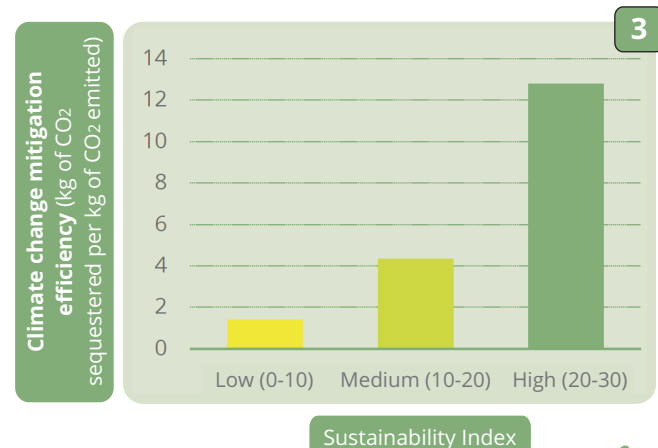
Although olive groves with higher and intermediate values of sustainability are not fully comparable (the former are typically traditional extensive and rainfed, and the latter semi-intensive and irrigated), it is nonetheless the case that olive groves with higher sustainability standards tend to bear lower olive fruit productions, specifically 27% and 14% lower than olive groves with intermediate and lower standards, respectively (graph 1). Nevertheless, the lower production rates **are financially offset by the current booming prices of organic EVOOs**.



Types of EVOO (in parentheses, their retail price; November 2022)

In view of the current climate crisis, the business plan for any agricultural firm should provide for an improvement in the farm capacity **not only to harvest more agricultural products but also to "harvest more carbon and biomass"**. Our results show that olive groves with high levels of sustainability are **much more efficient at sequestering atmospheric carbon and, therefore, at contributing to the mitigation of climate change, actually up to 9 times more than conventionally managed olive groves** (graph 3).

In graph 2 it can be seen how, out of the 3 categories of ecological EVOOs considered (which cover the wide range of prices for the equally wide range of products), only the cheapest one showed lower profits than those obtained by the conventional olive groves. In other words, olive farmers who choose to produce an organic EVOO with **higher quality standards**, thus adding **environmental added value to their brands**, gain access to a range of customers who attach great importance to excellence and, consequently, compensate farmers for their effort and tenacity.



## KEEP IN MIND THAT...

currently, modifying olive grove management practices towards higher standards of sustainability is a voluntary decision directly dependant on the individual sensitivity of each farmer. However, it will shortly become a **request by the European Union's CAP and agro-environmental policies, which will support and reward farmers who are committed to the transition towards a more responsible, resilient and sustainable agricultural model and which will likely discourage those who continue with their usual farm management routines**.