



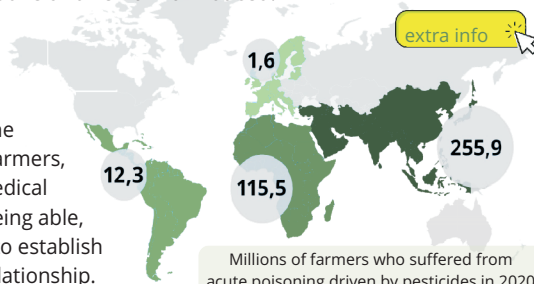
THE IMPACTS OF AGROCHEMICALS



ON THE HEALTH OF FARMERS

More than a million and a half European farmers suffered some type of significant adverse reaction triggered by pesticides during 2020. Regardless, most of the impacts driven by agrochemicals are cumulative and remain unnoticed.

They can end up chronically affecting the health of farmers, without medical sciences being able, too often, to establish a causal relationship.



YOU SHOULD KNOW THAT... glyphosate, the world's most widely applied herbicide, is considered by the WHO as "probably carcinogenic to humans".

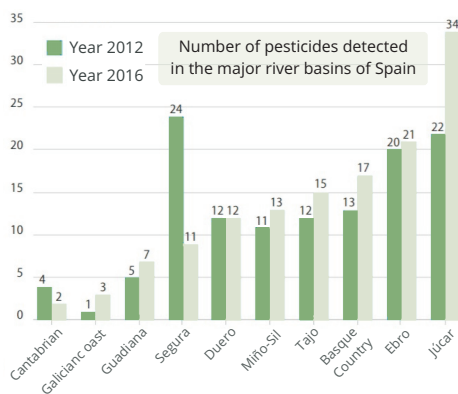
ON THE HEALTH OF CONSUMERS

Health problems derived from recurring consumption of foods containing pesticide traces include carcinogenic, mutagenic, reproductive, neurotoxic and immunosuppressive ones.



The European Food Safety Authority (EFSA) ensures that the levels of pesticide contents in food remain "safe". However, following a precautionary approach, the only safe dose of a potentially toxic substance is a ZERO DOSE

ON THE ENVIRONMENT



The overapplied and wasted agrochemicals may impose significant effects on soils, water bodies, flora and fauna and even the air. In addition, they can become part of the ecosystems food chains of which humans are a key component.

DID YOU KNOW THAT...

during 2021, traces from over 100 different pesticides were detected in the fresh food marketed in Spain?

Circa 60% of these pesticides are capable of altering human endocrine system and, therefore, human reproductive capacity, even in very small dose. They are called ENDOCRINE DISRUPTORS.

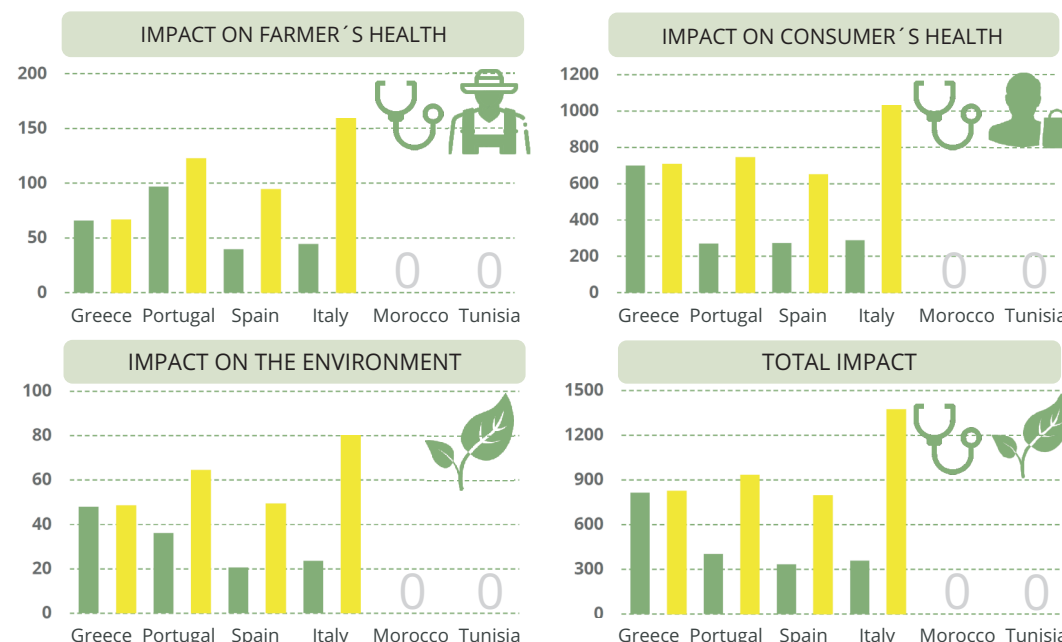
A CALCULATOR FOR IMPACTS

The College of Agriculture and Life Sciences of the Cornell University (New York, USA) has produced a calculator that can be accessed on its website to estimate the impact that more than 500 agrochemicals bear on the health of farmers, consumers and the environment. Any person can freely access these data just by knowing the active principle, the composition of the commercial product and the dose applied per hectare.

In turn the calculator provide with a number, ranging between 6 and 210, as a "risk level" that any given agrochemical treatment can have on people and the environment, thus allowing the comparison between different commercial products and dosages.

DIFFERENT PRACTICES: DIFFERENT RISKS

These are the cumulative impact indices of agrochemicals over 55 olive farms across the 6 countries in SUSTAINOLIVE. The indices for olive groves with higher sustainability standards are colored in green; yellow indicated lower sustainability standards of olive groves. Higher scores involve greater risks and probability of adverse impacts.



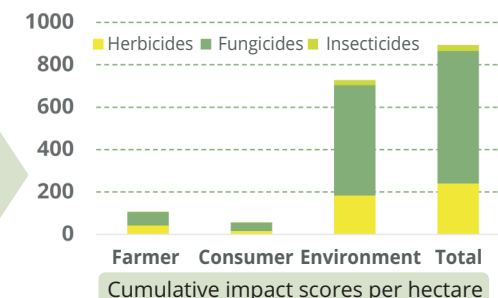
1 In Greece, the application of pyrethroid insecticides and copper oxides in olive groves with higher sustainability standards explain the absence of major differences in the agrochemical impacts expected when compared to the least sustainable olive groves.

2 Olive farms in Portugal, Spain and Italy form a consistent cluster in which the more intensive use of agrochemicals in the least sustainable olive groves results in significantly greater impacts on human and environmental health.

3 The rare application of chemical treatments in the olive groves of Morocco and Tunisia involves that risks to human and environmental health are largely minimized.

The impact was calculated as a 51% lower for the set of olive groves that apply sustainable management practices. This result is in line with the objectives established by the EU in its Zero Pollution Action Plan for 2030.

When we compare the risks on human health and the environment of applying different agrochemicals, it turns out that fungicides (mainly copper-based) are those which contribute the most, followed by herbicides and insecticides. The search for natural fungicides that substitute copper will be thus essential to mitigate agrochemical risks, and enhance the sustainability of olive groves.



A PAUSE TO REFLECT...



SIMAZINE was a widely used herbicide in olive groves until it was banned by the EU in 2002. The main cause of its banning was the trend of the product to accumulate in reservoirs and marshes above authorized levels.

DIMETHOATE, an insecticide widely applied against the olive fruit fly (*Bactrocera oleae*), was banned in July 2020. The main reason was its genotoxicity potential (ability to damage genetic material).

PHOSMET, a broad-spectrum insecticide, will be banned in the EU from November 2022, due to its severe negative impact on aquatic ecosystems and also to safeguard the health of farmers and consumers.

SUSTAINOLIVE: Novel approaches to promote the sustainability of olive cultivation in the Mediterranean. Research project 2019-2023

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