THE CONTRIBUTION OF GM CROPS TO SUSTAINABILITY

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The import of genetically modified (GM) crops by the European Union contributes to environmental, social and economic sustainability goals in the EU and in producing countries.

In the EU, it reduces the need for land expansion that would otherwise be needed to grow these crops locally. If soybean imports from the United States, Brazil and Argentina were to be discontinued, local production to meet the EU's soya demand would require a 155% increase in productive farmland primarily in France, Italy and Austria.[1] Recent assessments indicate that such expansion would require the conversion of vast areas of EU forests to cropland.[2]

In producing countries, the cultivation of GM crops supports the expansion of conservation agriculture practices like low-till and no-till farming. This provides tangible benefits for soil health, biodiversity, emissions reductions, water use management and Integrated Pest Management.

Soil Health

Low-till and no-till farming allow soils to store nutrients and water more efficiently. This maintains soil cover, preventing erosion and runoff, and increases soil biodiversity by promoting the growth of micro and macro fauna that are affected by mechanical plowing.[3]

Emissions reduction

The expansion of low-till and no-till farming made possible by herbicide tolerance traits contributes to enhanced carbon capture and reduced greenhouse gas emissions. This is due to lower soil disturbance, which means that carbon is captured and stored in the ground, as well as lower fuel consumption for farm machinery.[4,5]

Water management

Where pest-resistant crop varieties are planted, less water is needed; this is due to the reduction in volumes of the insecticides sprayed. Improved crop varieties bring farmers better yields per hectare planted – producing more 'crop per drop' of water used and reducing the need for irrigation. Drought-resistant crops also allow farmers to better manage water stress risk, maintaining optimal yields in water-scarce situations.

Integrated Pest Management

In countries where GM crops are grown, farmers using GM insect-resistant crop varieties make a more sustainable use of insecticides, reducing their environmental impact on the local ecosystem.

Insect-protected GM crops enable very targeted pest control, lowering the use of broad-spectrum insecticides; this ultimately minimises the risk for non-target species and wildlife and supports conservation of beneficial insect populations that can contribute to nature-based environmental services, and Integrated Pest Management approaches.[7]

Since 1996, the use of insecticides on the global area planted with GM insect-resistant crops has been reduced by 112.4 million kg of active substance for maize and by 331 million kg of active substance for cotton.[8]

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Globally, in 2018, the carbon sequestration benefits from reduced fuel use and additional **soil carbon storage** resulted in **carbon dioxide savings** of about **23 million kg**. This is **equivalent** to taking **15.3 million cars off the road** for a year.[6]

THE TOTAL SAVINGS OF

23
MILLION KG OF CO_2 NOT RELEASED

IS EQUAL TO TAKING
15.3
MILLION CARS OFF THE ROAD FOR A YEAR.

In just one year, GM Insect-protected corn saved an estimated

8.3 MILLION KG
OF ACTIVE SUBSTANCE – REDUCING GLOBAL USE OF CERTAIN INSECTICIDES BY 82%

For cotton the estimated global savings totalled

20.9 MILLION KG
OF ACTIVE SUBSTANCE – REDUCING GLOBAL INSECTICIDE USE ON COTTON BY 55%. FIGURES: 2018.[9,10]

GM TECHNOLOGY SUPPORTS THE EU AND TRADE PARTNERS IN MEETING SUSTAINABLE DEVELOPMENT GOALS

1 https://op.europa.eu/en/publication-detail/-/publication/2dba2ffd-a55c-4f83-b391-c63257fd598d; FEFAC., 2017. Feed & Food Statistical Yearbook 2005. European Feed Manufacturers Federation
2 https://www.researchgate.net/publication/309523631_Evaluating_the_Economic_and_Environmental_Impacts_of_a_Global_GMO_Ban3 https://open.efsa.europa.eu/questions
3 https://doi.org/10.1016/j.agee.2020.106841; https://doi.org/10.1016/j.ejsobi.2012.02.005;5 Reg. 1829/2003 (Art. 7.1), https://www.sciencedirect.com/science/article/abs/pii/S0167880920300268?via%3Dihub
4 http://www.fao.org/conservation-agriculture/impact/benefits-of-ca/en/
5 http://www.ecaf.org/ca-in-europe/environmental-benefits
6 https://doi.org/10.1080/21645698.2020.1773198
7 https://doi.org/10.1038/nature11153;. https://doi.org/10.1016/j.biocontrol.2018.10.001
8 http://doi.org/10.1080/21645698.2020.1773198
9 http://doi.org/10.1080/21645698.2020.1773198
10 Insecticide savings figures represent the active ingredient use relative to the amounts reasonably expected if these crop areas had been planted to conventional corn (maize) and cotton

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