**Genetically modified foods**

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The World Health Organisation (WHO) defines Genetically Modified Organisms (GMOs) as ‘organisms (i.e. plants, animals or microorganisms) in which the genetic material has been altered in a way that does not occur naturally by mating or natural recombination.’ Some argue that GMOs can revolutionise agricultural productivity, while critics argue that the known and unknown consequences of this unpredictable science justify the banning of or heavily regulating GMOs.

One of the strongest arguments against the use of GMOs is that they have the potential to crumple the agricultural sector of developing countries. In an influential article, titled, ‘Pros and Cons of GMO Crop Farming’, the authors argue that small scale farmers can suffer with the entry of genetically modified (GM) crops into the market. They contend that GM seeds are expensive and unaffordable for small farmers. As a result, there can be increased debt and financial strain on farmers. Moreover, according to them, multinational GM seed companies will have patented GM crops. Patent infringement, by small farmers, is likely as their crops can easily get comingled with patented GM crops. This can result in an array of legal complications, including the risk of being sued, for the small-scale farmers at the hands of big corporations.

[Over 3.93bn COVID-19 vaccine shots administered worldwide to date](https://nation.com.pk/28-Jul-2021/over-3-93bn-covid-19-vaccine-shots-administered-worldwide-to-date)

There is a focus on the fact that it is common for genetically engineered crops to be mixed with certain proteins that are not native to the original crop, which may trigger allergic reactions. Transgenic organisms’ pathogens often display resistance to antibiotics as well. Antibiotic resistance increases mortality rates. However, the authors do not appear to convincingly take into account the fact that GMOs undergo extensive allergen testing and scientists are still debating whether GMOs actually cause antibiotic resistance.

On the other hand, numerous scientists support the use of GMOs. For example, an article written by Ryan Raman, ‘GMOs: Pros and Cons, Backed by Evidence’, delves into the advantages of GM crops, including the following: GM crops are inserted with specific genes that protect the crop from pests and insects and GM foods have a higher nutritional value. However, this article does not sufficiently analyse the resulting consequences to the ecosystem. GM crops can be dangerous for specific insects, like butterflies. If these insects that hold great importance in the ecosystem die, the entire food chain is affected.

[Spain’s 5th COVID-19 wave takes toll on hospitals, tourism](https://nation.com.pk/28-Jul-2021/spain-s-5th-covid-19-wave-takes-toll-on-hospitals-tourism)

Proponents of GMOs further argue the potential of GMOs in reducing the carbon footprint of global crop cultivation is immense. Written by Elie Dolgin, ‘Could GMO crops help solve the climate crisis?’ is an article that highlights the fact that through DNA manipulations, scientists can engineer crops that develop relationships with certain microbes. Such a relationship will be symbiotic or mutually beneficial. Currently, according to the author, symbiotic relationships do exist–soybeans form relationships with a bacterium called rhizobia. The bacterium helps turn nitrogen from the air into a form that can be used by plants, a process called nitrogen fixation. Nitrogen is needed by plants for photosynthesis. Scientists are confident that through genetically engineering crops, various other symbiotic relationships can be developed in nature. This will remove the need for artificial fertilisers, which, according to the International Fertilizer Association, account for 1.2% of the world’s total energy.

[Canada has enough vaccines to inoculate all eligible Canadians](https://nation.com.pk/28-Jul-2021/canada-has-enough-vaccines-to-inoculate-all-eligible-canadians)

In the Pakistani context, food security has become a major risk for the country for various reasons, including climate change, soil salinity and droughts. Yet the only major GM crop grown in Pakistan is cotton. M.K. Tunio in his article ‘Pakistan likely to adopt more GMO Crops’ points out that the use of GM crops remains both limited and controversial in Pakistan” and asserts that for Pakistan, the hope that GMOs bring far outweigh the concerns. My own research has revealed that the vast majority of scientists are of the view that GM foods are safe for human consumption, and in fact, through the reduced use of fertilisers and pesticides, human health is promoted. A framework to regulate GM crops already exists as Pakistan has ratified both the Convention on Biological Diversity and the Cartagena Protocol and has framed its own biosafety rules and guidelines. To make Pakistan food secure, the need of the hour is for the policy makers and regulators to aggressively promote and facilitate the use of GM crops.