

ABRAMORAMA

<https://www.foodevolutionmovie.com/>

the balance

BIOTECH INDUSTRY TECHNOLOGY

What Are GMOs and How Are They Made?

The Basics of Genetic Modification



- GMO Mosquitos (sterile)
- Golden Rice (w/ Vitamin A)
<http://www.goldenrice.org>
- AquaAdvantage Salmon
- Rainbow Papaya
- Apples and tomatoes

<https://www.thebalance.com/what-are-gmos-and-how-are-they-made-375620>



FDA OKs GMO Salmon: Here Are The Benefits And Risks

Faye Flam covers CRISPR, Biotech & Healthcare

AquaAdvantage salmon

Animal breed

AquaAdvantage salmon is a genetically modified Atlantic salmon developed by AquaBounty Technologies in 1989. A growth hormone-regulating gene from Pacific Chinook salmon, with a promoter gene from ocean pout, were added to the Atlantic salmon's genes. Wikipedia

Rank: Breed

Higher classification: Atlantic salmon

This article is more than 3 years old.

The genetic modifications are designed to spur the fish to grow faster, thus making these farmed salmon cheaper to raise. The starting point is an Atlantic salmon. Researchers from AquaBounty endowed them with two new genes. One is a growth hormone gene from a different salmon species – the chinook salmon.

FDA just approved the first GMO fish - a salmon called AquaAdvantage. The creature will surely be reviled as a Frankenfish, but may still provide a more nutritious choice than farmed tilapia. This fish is not all that new. In 2010, the California based AquaBounty Technologies announced the GMO salmon might be on American dinner plates by 2012. They didn't anticipate

<https://www.forbes.com/sites/fayeflam/2015/11/19/the-benefits-and-risks-of-newly-approved-gmo-salmon/>

The True Story of the Genetically Modified Superfood That Almost Saved Millions

FP



FOREIGNPOLICY.COM
The True Story of the Genetically Modified Superfood That Almost Saved Millions

The imperiled birth—and slow decline—of Golden Rice.

BY ED REGIS | OCTOBER 17, 2019, 10:07 AM

The cover of the July 31, 2000, edition of *Time* magazine pictured a serious-looking bearded man surrounded by a wall of greenery: the stems, leaves, and stalks of rice plants. The caption, in large block lettering, read, "This rice could save a million kids a year."

<https://foreignpolicy.com/2019/10/17/golden-rice-genetically-modified-superfood-almost-saved-millions/>



INFORMED CONSEQUENCES

GENE-HACKING MOSQUITOES TO BE INFERTILE BACKFIRED SPECTACULARLY

SEPTEMBER 19TH 12 ... DAN ROBITZSKI ...



On its surface, the plan was simple: gene-hack mosquitoes so their offspring immediately die, mix them with disease-spreading bugs in the wild, and watch the population drop off. Unfortunately, that didn't quite pan out.

The genetically-altered mosquitoes did mix with the wild population, and for a brief period the number of mosquitoes in Jacobino, Brazil did plummet, according to research published in *Nature Scientific Reports* last week. But 18 months later the population bounced right back up, *New Atlas* reports — and even worse, the new genetic hybrids may be even more resilient to future attempts to quell their numbers.

<https://futurism.com/the-byte/gene-hack-mosquitoes-backfiring>



- The papaya ringspot virus nearly wiped the crop out. The virus first hit Hawaii in the 1940s and by the 1990s had reached almost every area that grows papaya. Production fell 50 percent between 1993 and 2006.
- Thankfully, Gonsalves, a Hawaiian-born scientist at Cornell University, developed a genetically modified papaya, known as the Rainbow papaya, designed to be resistant to the virus

<https://foodinsight.org/how-gmo-technology-saved-the-papaya/>

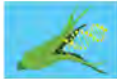


intelligence² DEBATES



About The Debaters

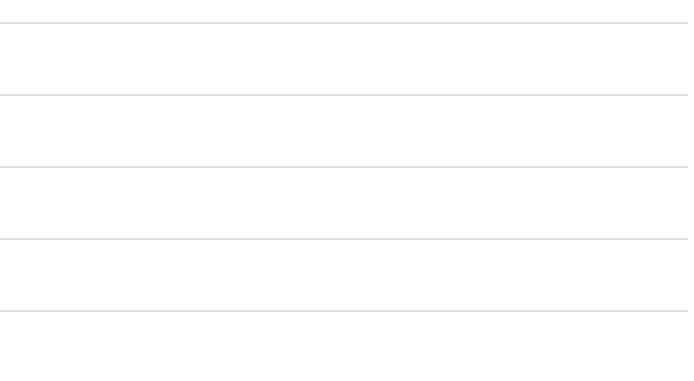
December 3, 2014
Genetically Modify Food



Genetically modified (GM) foods have been around for decades. Created by modifying the DNA of one organism through the introduction of genes from another, they are developed for a number of different reasons—to fight disease, enhance flavor, resist pests, improve nutrition, survive drought—and are mainly found in our food supply in processed foods using corn, soybeans, and sugar beets, and as food for farm animals. Across the country and around the world, communities are fighting the cultivation of genetically engineered crops. Are they safe? How do they impact the environment? Can they improve food security? Is the world better off with or without GM food?

- FOR THE MOTION**
- Robert Fraley** - Executive VP & Chief Technology Officer, Monsanto
Dr. Robert Fraley is executive vice president and chief technology officer at Monsanto. He has battled with Monsanto. [read bio](#)
 - Alison Van Eenennaam** - Genetics and Biotechnology Researcher UC Davis
Alison Van Eenennaam is a genetics and biotechnology researcher and cooperative extension specialist in the. [read bio](#)
- AGAINST THE MOTION**
- Charles Benbrook** - Research Professor, Center for Sustaining Agriculture and Natural Resources
Charles Benbrook is a research professor at the Center for Sustaining Agriculture and Natural Resources, Washington. [read bio](#)
 - Margaret Mellon** - Science Policy Consultant & Professor, Science, School of Environmental Sciences
Margaret Mellon is a science policy consultant in the area of antibiotic, genetic engineering and sustainable. [read bio](#)

<https://www.intelligencesquaredus.org/debates/genetically-modify-food>



Main Points

FOR THE MOTION

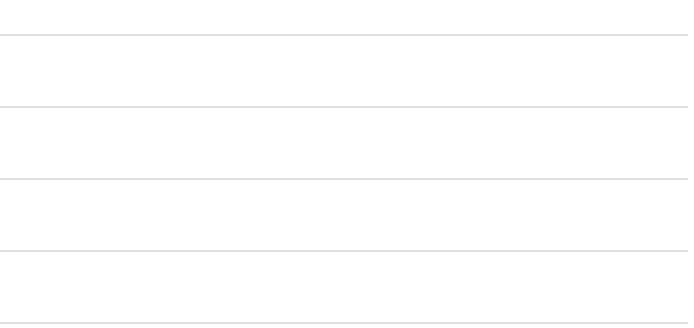
- FOR THE MOTION**
- GM crops have been safely in our food system for nearly 20 years. There are currently no known harms or risks to human health.
 - GM crops benefit farmers and the environment by increasing crop yields, reducing the use of pesticides, and reducing the need for tillage.
 - Food security will be improved through the development of crops that can fight disease, resist pests, improve nutrition, and survive drought.

December 3, 2014
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<https://www.intelligencesquaredus.org/debates/genetically-modify-food>



Main Points

AGAINST THE MOTION

- The current regulatory system does not adequately assess the safety of GM crops and we cannot be sure of what the long-term effects of consumption will be.
- The environmental threats include the possibility of cross-breeding with other plants, harm to non-target organisms, and decreased biodiversity.
- The world already grows enough food to feed everyone, but it doesn't get to the people that are hungry. Genetic engineering moves focus away from public policy solutions.

December 3, 2014

Genetically Modify Food



Genetically modified crops are created by the introduction of different genes to improve nutrition.

<https://www.intelligencesquared.us/org/debates/genetically-modify-food>

"GMO" is an abbreviation for "Genetically Modified Organism," a scientific and confusing term used to describe plants and animals improved through genetic engineering and to distinguish them from conventional breeding.

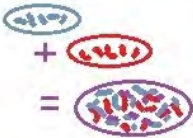
The United Nations Food & Agriculture Organization definition:

"Genetically engineered/modification is produced through techniques altered in a way that does not occur naturally through recombination."

But there is no "GMO", nor an official description. Genetic modification has existed on earth since the beginning of time. Every GMO ever created has been discovered by researchers who figured out how to do it, understanding it and learning from it. The movement is common and widespread, and sweet potatoes, which were never imagined. It is, in fact, a natural process. We are all "GMOs" as is every organism on Earth.

http://supportprecisionagriculture.org/more-information-about-gmos_rjr.html

Conventional plant breeding



Mixing hundreds of genes

and if that doesn't work there's always
Chemical mutagenesis irradiation

Greenpeace says

this is safe!

GM plant breeding



One single gene

Precision Agriculture

and this is dangerous!



Unhealthy Fixation

The war against genetically modified organisms is full of fearmongering, errors, and fraud. Labeling them will not make you safer.

By William Saletan

http://www.slate.com/articles/health_and_science/science/2015/07/are_gmos_safe_yes_the_case_against_them_is_full_of_fraud_lies_and_errors.html

CONTEMPORARY & COSTLY BIOTECHNOLOGY REGULATION



Plant biotechnology is a heavily regulated science both in the United States and the global marketplace, costing independent researchers and companies, alike, millions of dollars and years of time.

EurActiv 

SECTIONS - NEWS SPECIAL REPORTS LINKSDOSSIER INTERVIEWS OPINION

Nobel Laureate: EU politicians ignore ‘politically unwelcome’ GMO science

Home | Science & Policymaking | Interviews

by Sarantis Michalopoulos | EurActiv.com

11 Sep 26, 2018 (updated: Sep 27, 2018)



The petition wonders how many poor people in the world will have to die before we consider this a “crime against humanity”. Seriously?


Very seriously! Many people in the developing world are deliberately being denied the opportunity to use modern agricultural techniques to raise their quality of life.

Just golden rice alone, if its development was not being hampered, has the possibility to save many children from blindness and developmental defects. Currently, as many as 2 million children die every year from vitamin A deficiency.

In Uganda, the banana crops are being hit by a wilt for which there is no natural resistance in any species of banana. 30% of the population’s calories derive from bananas. If they lose that important food source millions across sub-Saharan Africa could die.

Yet there is a GMO solution. How many people must die before it becomes inescapable that the Green parties’ positions on GMOs are killing people?

- Although agriculture is sometimes under fire from environmental critics—as this paper will discuss—, the increase in farm production has been accompanied by major environmental improvements.*
- New technologies have limited the environmental damage of greater production. For example, the shift from conventional tillage to no tillage has reduced erosion. Most modern chemicals and fertilizers break down in short periods with sunlight.*
- Larger field equipment and advanced technologies speed up planting and harvesting. The shorter disturbance times and the high yields leave a smaller footprint on the natural landscape, giving more room and time for wildlife to thrive.*



Organic pesticides?

The New York Times <http://www.nytimes.com/2016/09/13/well/eat/how-the-sugar-industry-shifted-blame-to-fat.html>

How the Sugar Industry Shifted Blame to Fat

By ANAHAD O’CONNOR SEPT. 12, 2016

The sugar industry paid scientists in the 1960s to play down the link between sugar and heart disease and promote [saturated fat](#) as the culprit instead, newly released historical documents show.

The internal sugar industry documents, recently discovered by a researcher at the University of California, San Francisco, and [published Monday in JAMA Internal Medicine](#), suggest that five decades of research into the role of nutrition and heart disease, including many of today’s dietary recommendations, may have been largely shaped by the sugar industry.

Vernon L. Smith
Yesterday at 9:27am - LA Times

“The truth is that from the 1950s onward, many scientists truly believed that saturated fat and cholesterol were the primary cause of heart disease. Nutritionists...”

See More



Don’t scapegoat Big Sugar. Lots of food producers profited from the demonization of fat

The recent revelation that Harvard scientists were paid off to downplay sugar’s harms in the 1960s shows how the food industry shockingly manipulated nutrition science...

LATIMES.COM | BY LOS ANGELES TIMES

<http://www.latimes.com/opinion/op-ed/la-oe-reichholz-big-sugar-saturated-fats-20160927-snap-story.html>

All the “carbohydrate industries” profited from the demonization of fat, exactly as anticipated. Consumption of flour and cereal products increased by 41%, including a 183% increase in products from corn.

Overall, as [Americans cut their consumption of fat by 25% from 1965 to 2011, they increased carbohydrate intake by more than 30%.](#)