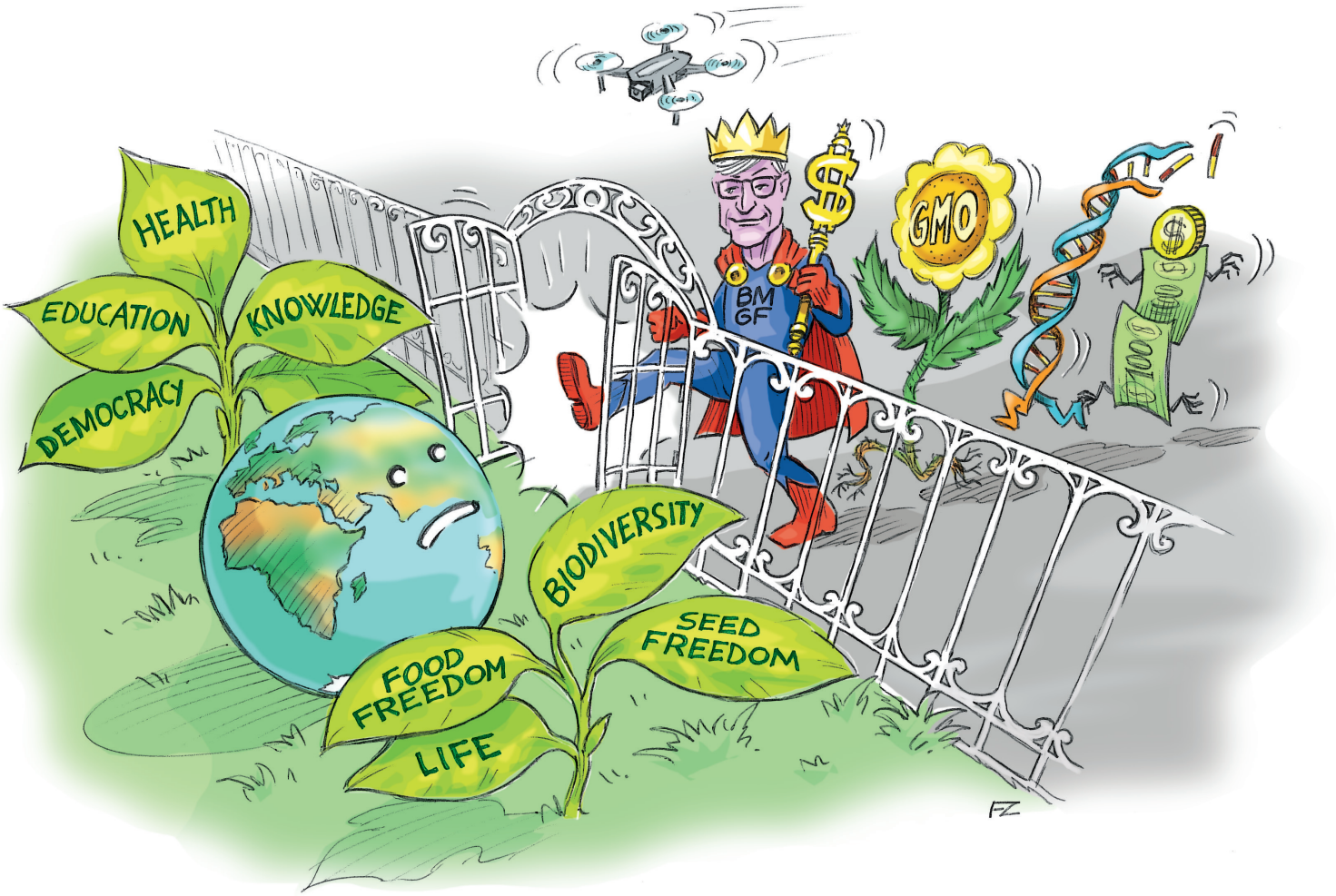
Full Report webpage

Extract from:

Gates to a Global Empire



OVER SEED, FOOD, HEALTH, KNOWLEDGE ...AND THE EARTH

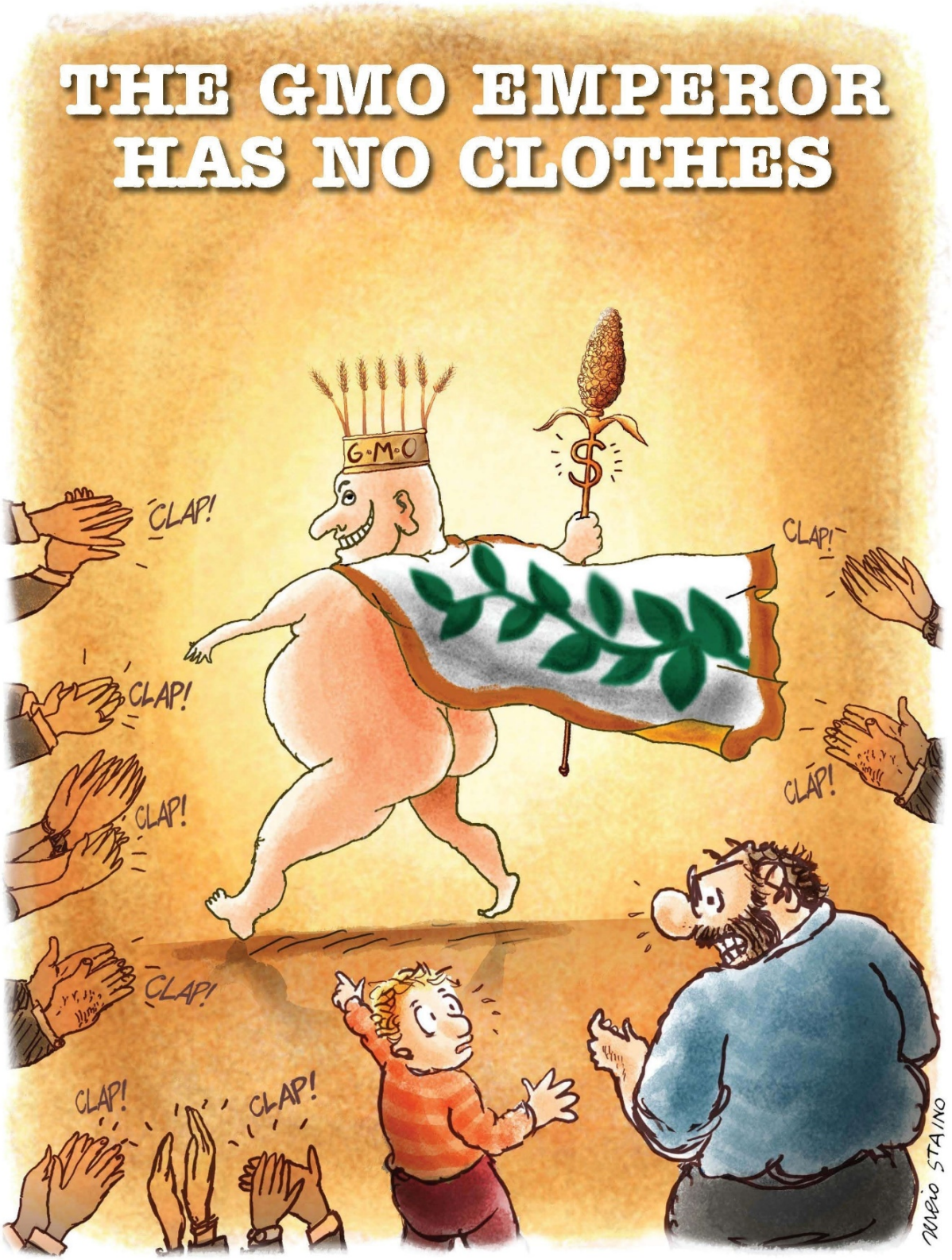
A GLOBAL CITIZENS' REPORT

Coordinated by

Navdanya international

SECTION 4

ONE EMPIRE OVER FOOD:
FORCE-FEEDING US GMOs AND FAKE FOOD


THE GMO EMPEROR HAS NO CLOTHES
G·M·O
$
CLAP!
CLAP!
CLAP!
CLAP!
CLAP!
CLAP!
CLAP!
CLAP!
MARIO STAINO

THE GOLDEN RICE HOAX[1]

Vandana Shiva

First conceived in the 1980s and a focus of research since 1992, genetically engineered vitamin A rice has been heralded on the cover of Time magazine in 2000 as a genetically modified (GMO) crop with the potential to save millions of lives in the Third World, proclaimed as a miracle cure for blindness[2]."

According to the UN, more than two million children are at risk due to vitamin A deficiency, which can cause vision impairment and lead to blindness. Is this golden rice really a miracle cure and the only means for preventing blindness in Asia? Or will it instead introduce new ecological problems just as the Green Revolution did, threaten biodiversity across Asia (Centre of Origin for rice crops)?

Despite unlimited resources at political, institutional, financial and corporate level, no reliable and stable vitamin A rice, that can significantly relieve the symptoms of Vitamin A deficiency in hungry people, has been produced in over 20 years of research[3].

In 2018, according to an article by Allison Wilson, PhD and Jonathan Latham, PhD[4], *"the US Food and Drug Administration (FDA) has concluded its consultation process on Golden Rice by informing its current developers, the International Rice Research Institute (IRRI), that Golden Rice does not meet the nutritional requirements to make a health claim. [...] In an attached memo[5], FDA notes the beta-carotene content of unmilled Golden Rice GR2E ranged from 0.50-*

---

[1] *Extracts from:*
- *Genetically Engineered Vitamin A Rice: A Blind Approach to Blindness Prevention,* by Dr.Vandana Shiva, Research Foundation for Science, Technology, and Ecology (2000), http://www.greens.org/s-r/23/23-18.html
- *THE "GOLDEN RICE" HOAX – When Public Relations replaces Science,* by Dr.Vandana Shiva, Research Foundation for Science, Technology, and Ecology (2000), http://online.sfsu.edu/repstein/GEessays/goldenricehoax.html
- *Biodiversity Or Gmos: Will the Future of Nutrition be in Women's Hands or Under Corporate Control?,* Navdanya, March 2015, https://seedfreedom.info/campaign/biodiversity-or-gmos/

[2] Everding, Gerry. "Genetically Modified Golden Rice Falls Short on Lifesaving Promises | ." *The Source | Washington University in St. Louis*, June 2, 2016. https://source.wustl.edu/2016/06/genetically-modified-golden-rice-falls-short-lifesaving-promises/

[3] Hilbeck, Angelika, and Hans Herren. "Millions Spent and No Vitamin A Deficiency Relieved." *Independent Science News | Food, Health and Agriculture Bioscience News*, August 10, 2016. https://www.independentsciencenews.org/health/millions-spent-who-is-to-blame-failure-gmo-golden-rice/

[4] Wilson, Allison, and Jonathan Latham. "GMO Golden Rice Offers No Nutritional Benefits Says FDA." *Independent Science News | Food, Health and Agriculture Bioscience News*, June 3, 2018. https://www.independentsciencenews.org/news/gmo-golden-rice-offers-no-nutritional-benefits-says-fda/

[5] U.S. Food & Drug Administration. Biotechnology Notification File No. 000158 | Note to the File. May 8, 2018. https://www.fda.gov/downloads/Food/IngredientsPackagingLabeling/GEPlants/Submissions/ucm607450.pdf

2.35ug/g (FDA 2018a). That is, beta-carotene levels in Golden Rice are both low and variable. This compares to beta-carotene levels measured in non-GMO foods such as fresh carrot (13.8-49.3ug/g[6]); Asian greens (19.74-66.04 ug/g[7]); and spinach (111ug/g). FDA notes the mean value of beta-carotene for GR2E is 1.26ug/g. This is, paradoxically, less beta-carotene than the 1.6ug/g measured for the original iteration of Golden Rice (Ye et al. 2000)."

Moreover, when we consider the number of patents involved in this initiative, it becomes all too clear that the only beneficiaries of these supposedly 'people-led' ventures are large companies operating for profit – not for people[8].

In 2011, the Bill & Melinda Gates Foundation resurrected this failed idea, by donating some US$10.3 million dollars to IRRI (which BMGF heavily funds as part of the CGIAR system) for the development of Golden Rice[9]. When peasants started a Movement to Stop Golden Rice, Bill Gates gave free rein to the Gates funded Cornell Alliance for Science biased journalist Mark Lynas to distort the reporting in favor of golden rice. Through Lynas and the Gates PR for Golden Rice, misleading reports were spread, instead of what independent scientists and peasants actually had to say[10].

Subsequently, in 2016, the Biotech PR lobby organised "Nobel Laureates" to promote Golden Rice and attack any criticism[11] from Civil Society Movements[12].

Despite strong opposition, a Golden Rice permit for 'Direct Use for Food, Feed and Processing' was issued by the Philippines' Dept. of Agriculture's Bureau of Plant Industry (DA-BPI) in December 2019. The Filipino Stop Golden Rice network immediately started a campaign[13], and on August 7th, 2020, which is now celebrated as "No to Golden Rice Day", they released their statement "Why we oppose Golden Rice"[14].

---

[6] Schaub P, Wüst F, Koschmieder J, et al. Nonenzymatic β-Carotene Degradation in Provitamin A-Biofortified Crop Plants. *J Agric Food Chem*. 2017;65(31):6588-6598. doi:10.1021/acs.jafc.7b01693, https://pubmed.ncbi.nlm.nih.gov/28703588/

[7] Chandra-Hioe MV, Rahman HH, Arcot J. 2017. Lutein and β-Carotene in Selected Asian Leafy Vegetables. J Food Chem Nanotechol3(3): 93-97. http://unitedscientificgroup.com/journals/ets/articles/v1n1/jfcn-043-maria-chandra-hioe.pdf

[8] GRAIN, MASIPAG and Stop Golden Rice! Network. "Don't Get Fooled Again! Unmasking Two Decades of Lies about Golden Rice." *Grain*, November 21, 2018. https://www.grain.org/en/article/6067-don-t-get-fooled-again-unmasking-two-decades-of-lies-about-golden-rice

[9] Masipag National Office. "Farmer-Scientist Group Deplore Secretive Visit of Bill Gates to IRRI, Golden Rice Commercialization Possible Agenda." *Masipag.Org*, April 14, 2015. https://masipag.org/2015/04/farmer-scientist-group-deplore-secretive-visit-of-bill-gates-to-irri-golden-rice-commercialization-possible-agenda/

[10] Masipag. "Philippines: Corporate science subdues the poor." *Grain*, July 8, 2016. https://www.grain.org/fr/article/entries/5509-philippines-corporate-science-subdues-the-poor

[11] Robinson, Claire. "Pro-GMO Campaign Exploits Nobel Laureates in 'Golden Rice' Greenpeace Attack," July 4, 2016. https://theecologist.org/2016/jul/04/pro-gmo-campaign-exploits-nobel-laureates-golden-rice-greenpeace-attack

[12] Chow, Lorraine. "Greenpeace to Nobel Laureates: It's Not Our Fault Golden Rice Has 'Failed as a Solution.'" *EcoWatch*, June 30, 2016. https://www.ecowatch.com/greenpeace-to-nobel-laureates-its-not-our-fault-golden-rice-has-failed-1896697050.html

[13] Masipag National Office. "Farmer-Scientist Group Condemns Golden Rice Approval." *Masipag.Org*, December 19, 2019. https://masipag.org/2019/12/farmer-scientist-group-condemns-golden-rice-approval/

[14] Stop Golden Rice Network (SGRN). "Why We Oppose Golden Rice." *Independent Science News | Food, Health and Agriculture Bioscience News*, August 7, 2020. https://www.independentsciencenews.org/health/why-we-oppose-golden-rice/

In 2000[15], Navdanya had also started a campaign in India showing that there were superior and safer alternatives to genetically engineering vitamin A into rice[16].

We read in goldenrice.org, that children under the age of 7 require 450 'units' of Retinol (Vitamin A) Equivalents. This means children would therefore have to eat 300gms of Golden Rice to get their daily requirement of vitamin A. In indigenous food cultures, a child's diet normally contains less than 150 gms of rice, but also contains a range of other nutritious foods grown by rural communities. In fact, Golden Rice is 350% less efficient in providing vitamin A than the biodiversity alternatives that nature has to offer.

Table 1: Traditional Indian food Sources of Vitamin-A and their β-carotene content:

Source	**Hindi Name**	**Content (microgram/100mg)**
Amaranth leaves	Chaulai Saag	266- 1166
Coriander leaves	Dhania	1166- 1333
Curry leaves	Curry patta	1333
Drumstick leaves	Saian Patta	1283
Cabbage	Bandh Gobhi	217
Fenugreek leaves	Methi- ka-saag	450
Radish leaves	Mooli-ka-saag	750
Mint	Pudina saag	300
Spinach	Palak saag	600
Carrot	Gajar	217- 434
Pumpkin (yellow)	Kaddu	100- 120
Mango (ripe)	Aam	500
Jackfruit	Kathal	54
orange	Santra	35
Tomato (ripe)	Tamatar	32
Milk (cow, buffalo)	Doodh	50-60
Butter	Makkhan	720- 1200
Egg (hen)	Anda	300- 400
Liver (goat, sheep)	Kaleji	6600- 100000
Cod liver oil		10,000- 100,000

Source: Nutritive value of Indian foods

[15] Ibid.
[16] Shiva, V., Singh, U., & Navdanya (Organization). (2002). *Vitamin—A Deficiency: Green Solutions Vs Golden Rice*. Diverse Women for Diversity. https://books.google.it/books?id=4gruNAAACAAJ

The Golden Rice HOAX

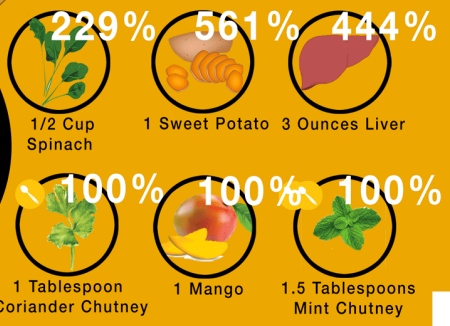
Profits from patents, not nutrition for children

1 What is Golden Rice?

Golden Rice is a genetically engineered **rice** with genes from **daffodils** and **bacteria** to produce 1.6 milligrams of Vit A in a kilogram of rice.

2 It will not alleviate Vitamin A Deficiency

Traditional Foods with Vitamin-A: Daily Value (%)



An adult will need to eat **2.272 Kilograms** of golden rice **everyday** to receive adequate Vitamin-A.

Source: ISAA

The transgenic rice plants must now be crossed with strains of rice that are grown locally and are suited to a particular region's climate and growing conditions. -ISAA.org

3 Trojan Horse

If approvals are given under a humanitarian **guise**, Syngenta can ***commercialise*** when they please. With the trait being crossed into local varieties of Rice, Syngenta can claim **ownership** over all those varieties in the future, for **their nutrition**, **climate resilience and their yield**. The yield of Golden Rice ***does not*** come from the 'Golden' trait. It comes from the plant the trait is put into.Engineering the Vitamin A trait into Rice is merely a means to establish **Intellectual Property Rights.**

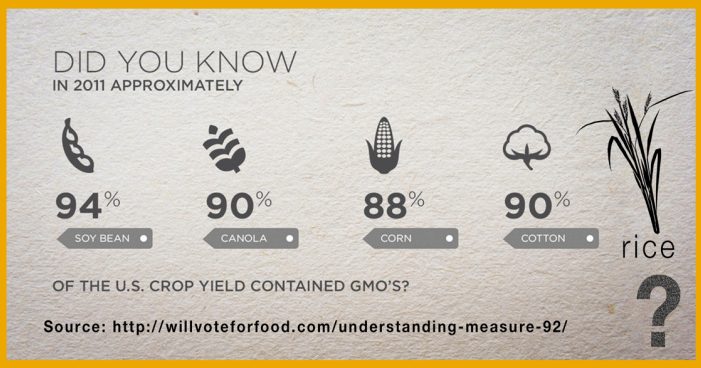
4 Golden Rice is not a Humanitarian Project

Syngenta owns **commercial rights** to GoldenRice and has negotiated licences with other Corporations

Source: http://www.goldenrice.org/Content1-Who/who4_IP.php

5 Charity Cartel

The fraudulent philanthropy is a means to gain access and dodge anti-trust regulators Rice eating cultures of the Global South must protect their food security and not allow a corporate takeover of the very basis of their survival.



SAY NO TO GOLDEN RICE

Will Gates destroy India's rich food cultures and Ayurvedic knowledge with GMOs and Fake Food?

Not only do these indigenous alternatives based on farmers' knowledge provide more vitamin A than Golden Rice at a lower cost, they also provide other nutrients.

Indeed, the first deficiency of genetic engineering rice to produce vitamin A is the eclipsing of alternative sources of vitamin A.

The lower-cost, accessible and safer alternative to genetically engineered rice is to increase biodiversity in agriculture. Further, since those who suffer from vitamin A deficiency suffer from malnutrition generally, increasing the diversity of crops and diversity of diets of poor people who suffer the highest rates of deficiency is the reliable means for overcoming nutritional deficiencies.

Even the World Bank has admitted that rediscovering the use of local plants and conservation of vitamin A rich green leafy vegetables and fruits have dramatically reduced vitamin A deficiency. Women in Bengal use more than 200 varieties of field greens.

Over 3 million people have benefited greatly from a food-based way of removing vitamin A deficiency by increasing vitamin A availability through home gardens. The higher the diversity crops the better the uptake of pro-vitamin A.

Environmental costs of Vitamin A rice

Tragically, sources of vitamin A in the form of green leafy vegetables are being destroyed by the Green Revolution and genetic engineering, which promote the use of herbicides in agriculture. For example, bathua, a very popular leafy vegetable in North India has been pushed to extinction in Green Revolution areas where intensive herbicide use is a part of the chemical package.

Vitamin A from native greens and fruits is produced without irrigation and wastage of scarce water resources. Introducing vitamin, A in rice implies a shift to a water-intensive system of production since so-called 'high yielding' rice varieties are highly water-demanding. Vitamin A rice will therefore lead to mining of ground water or intensive irrigation from large dams with all the associated environmental problems of waterlogging and salinisation.

WHY WE OPPOSE GOLDEN RICE

Stop Golden Rice Network (SGRN)

(Released in commemoration of the International Day of Protest Against Golden Rice, now in its 7th year)

Originally Published on August 7, 2020 in Independent Science News

The push for corporate-led solutions to hunger and malnutrition is alarming. In particular, Golden Rice is now being proposed as a solution to the worsening hunger and malnutrition associated with the pandemic. Agrochemical transnationals (TNCs) and collaborating institutions such as the International Rice Research Institute (IRRI) are using concerns over food security during the pandemic to push for an industrial agricultural system that is already discredited. To quote PAN Asia Pacific:

"in the webinar "The future of food systems in Southeast Asia post-COVID19" organised by IRRI and the FAO, Jean Balie, IRRI's head of Agri-Food Policy, said that they are "looking to increase the mineral and vitamin content in rice grains" as a response to the pandemic, alluding to renewed promotion of the genetically-modified Golden Rice, which has recently been approved for commercialization in Bangladesh and the Philippines" said PANAP[1].

Golden Rice projects and applications are currently underway in three countries. On December 10, 2019, the Philippines' Dept. of Agriculture's Bureau of Plant Industry (DA-BPI) issued a Golden Rice permit for Direct Use for Food, Feed and Processing. This was despite the standing challenge[2] by farmers, scientists and civil society groups regarding Golden Rice's unresolved safety and efficacy issues.

In August 2019, it was confirmed that Indonesia rice research centre (BB Padi) had grown Golden Rice in their testing fields in Sukamandi, West Java. But BB Padi is still awaiting permission from Indonesia's biosafety clearing house for confined field testing in selected areas.

In Bangladesh, rumours have circulated that Golden Rice would be approved by the Biosafety Core Committee under the environment ministry last November 15, 2019. While there have been no specifics yet, proponents are optimistic that approval in Bangladesh will occur.

We, the Stop Golden Rice Network (SGRN), believe that Golden Rice is an unnecessary and unwanted technology being peddled by corporations purely for their profit-making agenda. Golden Rice will only strengthen the grip of corporations over rice and agriculture and will endanger agrobiodiversity and peoples' health as well. Therefore, farmers, consumers and basic sectors have been campaigning against the propagation and commercialization of Golden Rice since the mid-2000s, utilizing various forms and actions, including the historical uprooting of Golden Rice field trials back in 2013.

---

[1] Arellano, Elnard. "'Business as Usual' For Agrochemical Industry Damaging To Biodiversity, Farmers." *Pesticide Action Network Asia Pacific*, May 22, 2020. https://panap.net/2020/05/business-as-usual-for-agrochemical-industry-damaging-to-biodiversity-farmers/

[2] Masipag National Office. "Farmers and Consumers Urge Regulatory Body to Halt Golden Rice Release." *Masipag.Org*, October 16, 2019. http://masipag.org/2019/10/farmers-and-consumers-urge-regulatory-body-to-halt-golden-rice-release/

Stop Golden Rice! Photo: Kervin Bonganciso/MASIPAG

Why is there intense opposition towards Golden Rice?

The importance of rice in Asian countries cannot be understated; 90% of rice is produced and consumed in Asia. Rice is at the center of the social, cultural and economic activities of peoples across Asia. It is also a political commodity as rice is the staple food for a majority of the Asian population. Asian countries such as the Philippines, Indonesia, and India are centers of origin of more than 100,000 varieties of rice. Also considered as among the most biodiverse countries in the world, a wide array of vegetables, fruits, root crops and cereals abound in the farms and forests of these countries, ensuring a dependable source of nutrition for the families and the communities.

Yet, malnutrition is prevalent, particularly among children and women. This is not simply because of the absence of an important nutrient or vitamin. It is caused by the "lack of access to sufficient, nutritious and safe food" due to poverty, and changing food production and consumption patterns (p. 27, UN FAO, 2017).

This impact is seen in IRRI's Green Revolution wherein many farmers across Asia have become bound to the expensive inputs and seeds peddled by huge agrochemical TNCs who promote a single-crop diet. As a result of green revolution, white rice has become dominant in once very diverse Asian diets; but white rice has a high glycemic index which causes diabetes and 60% of global diabetes cases are in Asia. Packing more nutrients, like Vitamin A, in rice, which requires more rice consumption would make this worse. Especially with the new pandemic for which diabetes is considered a risk factor for severity of Covid-19.

The United Nations Food and Agriculture Organization (UN FAO) identifies the dominance of large corporations over food systems as among the factors that contribute to food insecurity and malnutrition (p. 27, UN FAO, 2017[3]). In developing countries, large tracts of agricultural lands are being converted either to industrial and commercial land uses, or to large-scale mono-cropped plantations of cash crops such as pineapples, palm oil and bananas that hardly serve the nutrition needs of the people. FAO further acknowledges that the changes in food systems and diets, such

[3] Ibid.

as the prevalence of highly processed foods and displacement of traditional foods and eating habits also contributes to the worsening trend of food insecurity and malnutrition.

Given this context, we assert that Golden Rice is simply a 'band-aid' solution to the wide, gaping wound of hunger and poverty. Worse, the issues that continue to hound Golden Rice further prove the point that it is unnecessary and unwanted

1. *Negligible beta carotene content* – The current version of the Golden Rice, GR2E contains a negligible amount of beta-carotene (from 3.57 ug/g to 22 ug/g), which the United States Food and Drug Administration (US FDA) also acknowledged, making the product useless in addressing Vitamin A deficiency (VAD) in contrast to existing and readily available food sources. Already minimal, Golden Rice's beta-carotene was also found to degrade quickly after harvesting, storing and processing, such as milling and even cooking unless the farmers vacuum-pack and refrigerate the GM rice. Farmers from developing countries, however, do not seal or store the paddy rice in vacuum packs, which will make the product more expensive. Electricity also remains scarce in remote farming communities so refrigerating the harvest is unrealistic bordering on the absurd.
2. *No meaningful safety tests have been done*[4] – Even as the Golden Rice has been approved in the Philippines, there has been no testing done to ascertain if it is safe for human consumption. Meanwhile, the aforementioned beta-carotene degradation may result in toxic compounds causing oxidative stress damage which might lead to cancer. Dr. David Schubert of the Salk Institute for Biological Studies, USA and Dr. Michael Antoniou of King's College London, state that "*there have never been short nor, more importantly, long-term safety testing in laboratory animals (of Golden Rice) and this must be done for several generations in rats to determine if it causes birth defects, which we consider a serious possibility.*"
3. *Contamination of other rice varieties and wild relatives of rice* – Field trials conducted so far have only looked at the agronomic traits of Golden Rice, and not its long-term effects on the environment, including its possible effects on the genetic diversity of the thousands of rice varieties being cared for by small scale farmers and indigenous peoples. While rice is a self-pollinating crop, cross-contamination is still inevitable Contamination can also occur through seed mixing. Such contamination has already happened in the US with the Liberty Link rice scandal back in 2006 that caused US farmers millions of dollars in losses because of the inadvertent contamination of the yet unapproved GM rice.
4. *Safer sources of beta-carotene* – Being some of the mega-diverse countries, vegetables and fruits that are high in beta-carotene are found in abundance in the Philippines, Indonesia, Bangladesh, India and other target countries for Golden Rice. These foods are available and accessible for the people and contain much higher levels of beta-carotene than Golden Rice.

[4] Medina, Charito P. "Comments Regarding Consolidated Report of PHILRICE and IRRI's GR2E Rice Application for Direct Use as Food and Feed, or for Processing," October 16, 2019. https://bioscienceresource.org/wp-content/uploads/2020/03/Golden-Rice_DFFP_Medina-comments.pdf

The worsening land-grabbing and land conversion cases, liberalization of agricultural commodities and increasing control of corporations over agriculture and food, however, are preventing farmers and their communities from having access to these safe and nutritious foods. In developing countries, the challenges described above remain the main culprit of food insecurity and malnutrition. Both the development of biofortified crops like Golden Rice for solving health issues and corporate led projects in agriculture as ways to ensure food security represent a worrisome push for top-down and anti-diversity approaches to food and health that will ultimately undermine people's capacities to strengthen their local food systems. By emphasizing dependence on just a few market-based crops biofortification actually promotes a poor diet with little nutritional diversity

A demonstration against Golden Rice, Manila Photo: Ryan Damaso/MASIPAG

Golden Rice is a failed and useless product, and that is why we continue to resist and oppose it. Time and again, huge agrochemical companies, philanthrocapitalists and pseudo-public agencies have done everything in their power to deny the people's right to participate in decisions about their food and agriculture. Already, zinc and iron GM rice and thirty other GM rice are in the pipeline, with Golden Rice serving as the Trojan Horse to lure the people into social acceptance and false security.

More than resisting the release of Golden Rice however, we are pushing for safer, better and healthier alternatives to addressing VAD and other malnutrition issues. VAD and other malnutrition problems can be mitigated and addressed by having a diverse diet. Nutrition does not need to be an expensive commodity, nor rely on advanced technology. We believe that instead of pushing Golden Rice and biofortifying crops through genetic modification, governments should promote biodiversity in farms and on tables by supporting safe, healthy and

sustainable food production. We are also calling on governments to pay attention to the needs of our food producers, including facilitating access to lands to till, appropriate technologies and an agriculture policy that will promote and uphold the people's right to food and the nations' food sovereignty.

Stop Golden Rice Network (SGRN)[5]

Sources:

Beta-carotene degradation products – formation, toxicity and prevention of toxicity. Siems W, Salerno C, Crifò C, Sommerburg O, Wiswedel I. (2009) Forum Nutr. 61: 75-86.

Farmers and consumers urge regulatory body to halt Golden Rice release. 2019 October 16. http://masipag.org/2019/10/farmers-and-consumers-urge-regulatory-body-to-halt-golden-rice-release/

FAO, IFAD, UNICEF, WFP and WHO. 2017. The State of Food Security and Nutrition in the World 2017. Building resilience for peace and food security. Rome, FAO. http://www.fao.org/3/a-I7695e.pdf

GRAIN, "Biofortified crops or biodiversity? The fight for genuine solutions to malnutrition is on" 2019.

GM 'golden rice' opponents wicked, says Minister Owen Paterson. (2013, October 14). *BBC News*. Retrieved from https://www.bbc.com/news/uk-politics-24515938

Kinetics of β-carotene degradation under different storage conditions in transgenic Golden Rice® lines. Bollinedi, H., Dhakane-Lad, J., Krishnan, S.G., Bhowmick, P.K., Prabhu, K.V., Singh, N.K., and Singh, A.K. (2019). Food Chemistry 278, 773-779. https://sciencedirect.com/science/article/pii/S0308814618320661

Liberty Link Rice: The Scandal that Woke Up the World. (2006, August 27). Retrieved from https://dev.panap.net/sites/default/files/rs_libertylink_1.pdf

The Global Pipeline of GM crops: an outlook for 2020. Claudia Parisi, Pascal Tillie, Emilio Rodriguez-Cerezo, European Commission, Joint Research Centre (JRC), Institute for Prospective Technological Studies (IPTS), Edificio Expo, C/Inca Garcilaso 3. 41092, Seville, Spain

Who paid for the golden rice eco-attack? (2013, August 21). *CFact.*Retrieved from https://www.cfact.org/2013/08/21/who-paid-for-the-golden-rice-eco-attack/

Stokstad, Erik. "Bangladesh Could Be the First to Cultivate Golden Rice, Genetically Altered to Fight Blindness." Science | AAAS. Last modified November 20, 2019. https://www.sciencemag.org/news/2019/11/bangladesh-could-be-first-cultivate-golden-rice-genetically-altered-fight-blindness

"How Does the Gates Foundation Spend Its Money to Feed the World?" Grain. Last modified November 4, 2014. https://www.grain.org/en/article/5064-how-does-the-gates-foundation-spend-its-money-to-feed-the-world

"Biofortified Crops or Biodiversity? The Fight for Genuine Solutions to Malnutrition Is On." Grain, June 4, 2019. Last modified June 4, 2019. https://www.grain.org/en/article/6246-biofortified-crops-or-biodiversity-the-fight-for-genuine-solutions-to-malnutrition-is-on

"'Business As Usual' For Agrochemical Industry Damaging To Biodiversity, Farmers." Pesticide Action Network Asia Pacific, May 22, 2020. https://panap.net/2020/05/business-as-usual-for-agrochemical-industry-damaging-to-biodiversity-farmers/

[5] See the full list of signatories in the orignal article: Stop Golden Rice Network (SGRN). "Why We Oppose Golden Rice." *Independent Science News | Food, Health and Agriculture Bioscience News*. August 7, 2020. https://www.independentsciencenews.org/health/why-we-oppose-golden-rice/

INDIAN MINISTER OF ENVIRONMENT HEEDS PUBLIC CALL FOR A MORATORIUM ON BT BRINJAL

Navdanya

Since the mid-2000s Big Agribusiness had been pushing for the introduction of Bt Brinjal in Bangladesh and India concurrently. It was approved for commercialization in India in 2009, but - after public outcry and rounds of debates, a moratorium on Bt Brinjal was passed by the Indian government in February 2010. Introducing a ban that is in place until today. On the other hand, Bt brinjal was approved for commercial release in Bangladesh in 2013[1].

In February 2010, after nearly a month of public hearings, protests, and nationwide debate[2] , India's Environment Minister Jairam Ramesh announced an indefinite moratorium on the sale of Bt Brinjal (genetically modified eggplant). Cleared for commercialisation in October 2009 by India's Genetic Engineering Approval Committee (GEAC), Bt Brinjal has been met with tremendous resistance by farmers, consumer advocacy groups, medical experts, and environmentalists. A number of state governments, which in India's federal system have the final say on agriculture, had also expressed apprehension about the product.

The moratorium on Bt Brinjal in India was a milestone in the global movement for GMO-free agriculture.

Dr Vandana Shiva has likened India's struggle for GMO-free agriculture to Mahatma Gandhi's movement for independence. "Opposing Bt Brinjal is as much a fight for our food as it is our freedom. When the British Raj imposed the salt law to establish a salt monopoly, Gandhi started the Salt Satyagraha. When corporations like Monsanto impose GMOs to establish seed monopoly and control our food, we are forced to declare a Seed Satyagraha. GMO-free, biodiverse, organic agriculture is the satyagraha of our times."

[1] Choudhary B et al 2014. The Status of Commercialized Bt Brinjal in Bangladesh. ISAAA Brief No. 47. Ithaca NY

[2] "CEE - India Environment Portal | News, Reports, Documents, Blogs, Data, Analysis on Environment & Development | India, South Asia." http://www.indiaenvironmentportal.org.in/category/3947/thesaurus/cee/?page=4

BT BRINJAL:
ALLIANCE FOR CROOKED SCIENCE & CORPORATE LIES

Farida Akhter

Introduction

Brinjals, locally called *Begun* (in Bangla) by the people of Bangladesh, are the most common and favourite vegetable. On 17 May 2020 the New Age, a national daily of Bangladesh, published an article of mine [Akhter, 2020] titled "Aubergine Story: Local varieties exist, not GMOs". In the article, I argued that in the month of Ramadan (month long fasting of the Muslim communities), the demand for brinjal (eggplant/aubergine) is the highest, because it is the main component of the most popular *Iftar* item, the *Beguni*. From the rich to the poor, Iftar[1] is incomplete without *chola-peyaju-beguni* on the plate. In the market, local varieties of brinjals were amply seen, but not Bt brinjal, although claimed by the promoters that smallholder farmers have rapidly adopted the crop, from just 20 in 2014 to more than 27,000 in 2019 across all districts of Bangladesh [Conrow, 2019].

The article referred to a UBINIG quick survey over telephone in April-May 2020, with farmers in eight districts and consumers in Dhaka to investigate how farmers were faring during the COVID-19 Lockdown period with the marketing of brinjals. These were sold for prices ranging from Tk 35 to Tk 80 a kilogram on the market. In early May, at least 26 different local varieties with beautiful names, specific to their agro-ecological locations, were found on the market. The prices of HYV brinjals were between Tk 25 - 50, and that of hybrid was Tk 45–55 per kilogram. Commercial farmers grow the HYV varieties on a large scale while the small farming households grow local varieties on a smaller scale in their small pieces of land. Interestingly, they are readily available on the market and have a good demand. Local varieties fared much better than the high yield varieties (HYVs) and hybrid varieties.

Jessori Begun | Shoila Begun | Jhumka-Sada

[1] Iftar (Arabic: إفطار,'break of a fast'), is the evening meal with which Muslims end their daily Ramadan fast at sunset.

Bt brinjal seeds (Bt brinjal 1, 2, 3 and 4) for the winter season were given to farmers in different areas during the period of December 2019 to January 2020. If the claim of International Food Policy Research Institute (IFPRI) and the ministry of agriculture that 27,000 smallholding farmers were cultivating Bt brinjal across all districts of the country is true, then it is reasonable to expect that the new genetically modified crop would have grown enough in quantity to be visible in the market. The markets in eight districts and in Dhaka showed no presence of any Bt brinjal in late April–early May 2020. None of the sellers in the market could identify any Bt brinjal in their stock. None of the buyers interviewed in the Dhaka market could identify any aubergine which would be a GMO.

Could it be that they were in the market without any label? In that case, it is a clear case of violation of approval conditions of Bt brinjal in the country. We know that in October 2013, the National Committee on Biosafety (NCB) imposed seven conditions to be followed in field cultivation of the four Bt brinjals (1,2,3 & 4) One of these conditions was labeling — if Bt brinjal is brought to the market, it must be labeled, i.e., it should be clearly stated that it is GMO. But the Director General of BARI, Dr. Rafiqul Islam Mondol only agreed to label the sacks as 'poison-free GM brinjal' [Akhter, 2016], which was also not followed.

Source: *Bangladeshe Adhunik projuktir bt beguner jat udbhabon O utpadon projukti*, BARI, USAID, ABSPII & Cornell University, 2014

Culturally, farmers have the tradition of naming the brinjals they grow with beautiful local names such as Hingla begun, Batka begun, Tal-begun, Kalo-khato begun, Laoitta begun, Sailla begun, Ghritakanchan begun, Nayantara and many others. Brinjal (Solanum *melongena L.*), also known as aubergine or eggplant) is one of the most common and important vegetables. It is an important solanaceous crop of the subtropics and tropics. In this rich diversity of brinjals, Bt brinjal is now a '*bejat*' name in the list of hundreds of diverse varieties of aubergine in the country, because these are numbered like prisoners and are called Bt brinjal 1, 2, 3 and 4. The word '*bejat*' expresses the displacement in the order of crop varieties implicating potential harm to agriculture, food system and culture. In 'bejat', the original names of source materials have disappeared. Local names of brinjals are always related to specific agro-ecological conditions where a variety could express their natural genetic traits. But Bt brinjal seeds are given to

different geographical locations assuming a homogeneous agro-ecological environment where they do not belong. Now it is harder to decide where they belong, except in the gene-manipulating laboratories. Farmers cannot feel or determine any agro-ecological, culinary or cultural connections to laboratory varieties, such as for growing these brinjals. Therefore, farmers who received the seeds, having not being told the real name of the introduced Bt brinjal, called genetically engineered varieties as "*Sarkrari Begun*" or the "government brinjal".

The genetically modified Bt brinjal has been developed by inserting a gene *cry1Ac* from a soil bacterium called *Bacillus thuringiensis* through an *Agrobacterium*-mediated gene transfer. Four Bt brinjals are distributed to farmers for field cultivation. The original names of the varieties that had been selected for transgenic manipulation are Uttara (Bt brinjal-1), Kajla (Bt brinjal 2), Nayantara (Bt brinjal 3) and ISD-006 (bt brinjal 4). These are some of the most popular commercial varieties as well and they are also grown as non-Bt varieties. There are elements of deception in Bt brinjal field trial in selecting the most popular varieties; if farmers accept any transgenic variety, it could be claimed that genetic manipulation is a commercial success. But farmers' varieties, selected over hundreds of years, are already successful and proof of the brilliance of the farmer's knowledge. Genetic manipulation is merely a trick for appropriation of farmer's knowledge.

Bangladesh has been a target country for the Bt brinjal under the Agricultural Biotechnology Support Project II (ABSP II). The introgressions of Bt gene into 9 Bangladeshi local variety brinjals were done at MAHYCO, (Maharashtra Hybrid Seed Company) the Indian company, using their lab facility. MAHYCO has received the application rights of the Bt cry1Ac gene technology from US company Monsanto which has a 26 per cent stake in Mahyco-Monsanto Biotech (MMB). The Bangladeshi varieties were backcrossed at MAHYCO with transgenic brinjal containing Cry1AC. This means that there was hardly any scope for knowledge and technology transfer from MAHYCO's proprietary technology to the scientists working in public research institutions of Bangladesh. The Bt brinjal is actually a piracy of the local variety brinjals to be genetically modified for patenting by Monsanto-Mahyco partnership.

Under ABSPII, the three country partnership arrangement was extended to the Indian Institute of Vegetable Research, Varanasi, University of Philippines in Los Banos, a government research institute Bangladesh Agricultural Research Institute (BARI) and a private seed company, East West Seeds, Bangladesh. The ABSP II is funded by USAID and led by Cornell University, USA.

On 25 May, 2020 Frontiers in Bioengineering and Biotechnology published an article based on a 2019 study on Bt brinjal claiming that 83.1% of Bt brinjal growers were satisfied with the yields obtained, and 80.6% were satisfied with the quality of fruit, while 58.7% non-Bt brinjal growers were satisfied with their yields and 28% indicated that a large portion of their fruit was infested. Among the non-Bt brinjal growers, 39.6% had not heard of Bt brinjal [Shelton, et. Al 2020]. Another article was published on 28 May, 2020 in the CornellCALS, by Joan Conrow which referred to the same article published on May 25, 2020 in the Frontiers making a

conclusive statement that "farmers in Bangladesh achieved significantly higher yields and revenues by growing insect-resistant, genetically engineered eggplant". However, the article quotes Maricelis Acevedo, Director for the Feed the Future South Asia Eggplant Improvement Partnership, "This study provides more evidence that Bt brinjal is being accepted in the market, but more work is needed to develop new varieties better adapted to local conditions and market preferences " [Conrow, 2020]. It looks like they do not have updated information on the Bt brinjal farmers' performances in this year; it was simply a deceptive tactic using previous studies with newer headlines. The question remains, why are they not visible in the market?

Cornell University & Bt brinjal "success" lies

The Cornell Alliance for Science was launched in 2014 with a $5.6 million grant from the Bill and Melinda Gates Foundation to "add a stronger voice for science and depolarize the charged debate around agricultural biotechnology and genetically modified organisms (GMOs)" [CCR, 2015]. Cornell University is home to the controversial Cornell Alliance for Science, which is publicizing the Bangladesh Bt brinjal project. Its partners include the GMO industry group ISAAA, which is funded by Monsanto, CropLife, and Bayer. Cornell gave Mark Lynas a Visiting Fellowship and a platform to voice his pro-GMO views. Lynas now promotes GMOs "to the exclusion of almost everything else". Cornell paid his travel expenses to the Philippines to write a pro-GMO article [GMW, 2015]

The role of Bangladesh Agricultural Research Institute (BARI) from the beginning was guided by the ABSPII project guidelines, and it had to provide its Regional research stations for Field Testing and later on to get formal government approval for commercial cultivation in the farmer's field. Started back in 2005 it took seven years to complete greenhouse trials. The national bio-safety committee approved the contained field trial of Bt. Brinjal in 2007-08 [Ahmed, 2013].

However, the results of the contained field trial were not shared with relevant stakeholders before it was allowed for Open Field Trial. Later, Open-Field Trials of Bt brinjal were conducted in various agro-ecological zones in the country for local adaptability of the crop. From the beginning, the field research was conducted by BARI/USAID/ABSPII and Cornell University. Monsanto hardly appeared on those signboards, as all the signboards were in English. As the implementing agency, it said: Biotechnology Division, BARI, Gazipur ARS, USAID, ABSP-II & Cornell University [UBINIG, 2013].

There were also Danger signs for GMO field testing!

Danger Signboard on the Research Station Field

This Confined Trial is for research only

Not Approved for Human food or Animal Feed

Entrance is restricted

AUTHORISED PERSONNEL ONLY

But fencing in all the Research stations was hardly strong enough to restrict entrance of the public.

The role of the government was limited to getting approval from the National Committee on Biosafety (NCB) under the Ministry of Environment & Forest (MOEF) as recommended by the National Technical Committee on Crop Biotechnology (NTCCB) under the Ministry of Agriculture. The report of the performance of the Field Trials in the BARI research stations was never published nor is there any reference to it. UBINIG's investigation in the six regional stations of

BARI showed that the trials were not very satisfactory {UBINIG, 2013].

In a notification (in bangla) of October 30, 2013 bearing a reference No.22.00.0000.073.05.003.2012-271 the Environment Section-2 of the Ministry of Environment and Forestry provisionally approved the petition of BARI to cultivate Bt Begun varieties 1,2,3 and 4 in a limited scale at the field level with seven conditions. One of the conditions was for the applicant organization to take effective measures by labeling so that Bt Brinjal can be marketed as per Biosafety Rules. The Ministry of Agriculture till now, has not taken any such measure.

Strategies of Cornell University to promote Bt brinjal

Attracting the top leadership of the State- The Prime Minister

Ronnie Coffman, Director, Cornell University (left), Prime Minister Sheikh Hasina Wazed (middle) and Minister for Agriculture Matia Chowdhury (Right)

In May 2015, Cornell University Visiting Director, Ronnie Coffman, honored Prime Minister Sheikh Hasina with a citation at her office on behalf of the university's president David J Skorton. The citation signed by the president of the university read: "*Prime Minister Sheikh Hasina's continuous support for the improvement of agriculture sector in Bangladesh and attain self-sufficiency in food production as well as her keen interest in promoting science and technology*."

Ronnie Coffman of Cornell University informed the Prime Minister that the new variety of the brinjal can withstand pest attacks and hence can be free from pesticides. Sheikh Hasina thanked Cornell University for the innovation of Bt brinjal [NTV, 2015].

Lies & False Claims

Although Bangladesh Agricultural Research Institute (BARI) is the responsible government institution in conducting the research and monitoring field cultivation, unfortunately it hardly provides information on the success or failures of Bt brinjal. For example, there is no information on BARI's website (www.bari.gov.bd). The Department of Agricultural Extension (DAE) which is responsible for distributing the Bt brinjal seeds to the targeted farmers, also has no information on their website (www.dae.gov.bd) . They did not have to do any promotion of Bt brinjal, nor come up with any performance reports. No report has been published as research findings of the first two rounds of field cultivation except some propaganda

campaigns. Even the International Service for the Acquisition for Agri-Biotech Applications (ISAAA) did not publish any report after its Brief 47: The Status of Commercialized Bt Brinjal in Bangladesh, in 2014. There is nothing reported in 2015 about the so-called success of the second round of field cultivation. In the second round, Bt brinjal seedlings were given to 108 farmers, of which 79 farmers were interviewed and were found to have had massive failures [UBINIG, 2015].

For Cornell University, despite having big named scientists and propaganda journalists like Mark Lynas, it was not very easy to establish the claims of the so-called success of Bt brinjal cultivation in Bangladesh. Farmers' organizations like Nayakrishi Andolon, research organizations like UBINIG, environmental activist groups and individual activist journalists always had different reports published before and after the approval of Bt brinjal. Field areas including farmers fields were followed up and farmer's experiences of failures were documented. Repeatedly UBINIG and Nayakrishi proved that the so-called claim of success has no scientific and empirical basis. Till today, the promoters of GMOs failed to produce any scientific evidence that Bt-brinjal field trials were successful, nor could they show farmers had adopted their transgenic varieties. The false claims of successes were, hence, challenged.

The International Food Policy Research Institute (IFPRI) also undertook a study under the behest of the Ministry of Agriculture with 1200 farmers in 2018; the report was released in 2019 [Ahmed, 2019].

False Claims on Economic Gains

The IFPRI study findings claimed, "farmers, who cultivated the GM versions gained by 55 percent higher income compared to their peers growing the non-Bt brinjal" by over Tk. 30,000 per hectare. [IFPRI, 2019]

In Bangladesh the majority of farmers (84%) belong to small households, owning less than a hectare of land, and only 14% households have over a hectare to 3 hectares [BBS,2014]. Brinjal farmers are mostly small-scale farmers and allocate land to brinjal farming which is less than a hectare. Bt Brinjal farmers also fall into this category. In a UBINIG study (2019) 71% of farmers receiving Bt Brinjal seeds were small scale farmers and only 25% farmers were middle farmers. However, they do not allocate all the land they own for brinjal farming and also not to Bt Brinjal farming. In the initial round of Bt brinjal farming (2015-16), 33 farmers (89%) out of 37 allocated 33 decimals of land, i.e. less than one-third of an acre for Bt brinjal. The land allocated by the farmer for Bt brinjal cultivation varied by number of seedlings given and therefore it was found that the allocated land was between 4 decimals to 38 decimals. The land was selected and the amount was determined by the DAE official himself [UBINIG, 2019].

UBINIG field investigation showed a farmer cultivating Bt brinjal 2, and Bt brinjal 4 in a land of 33 decimals incurred a loss of Tk. 30,000, and another farmer had a loss of Tk.25,000 [Jony & Sobhan, 2016]. Showing there is hardly any basis for IFPRI's claim.

False Claim: Bt brinjal is Pesticide-free

Bangladesh is a country of a wide range of varieties/cultivars of brinjals. Bangladesh has at least 248 indigenous varieties of brinjals. Most of the varieties are resistant to major disease and pests. The major pests of brinjal include insects, mites, fungi, nematodes and bacteria. The fruit and shoot borer (*Leucinodes orbonalis*), for example, is one of the insect pests of brinjal. Some of the local varieties including Jhumka 1, Jhumka 2 are highly resistant to fruit and shoot borer; while, Islampuri 3, BL 34, Muktakeshi are fairly resistant, Singnath long and Singnath 4 are tolerant to brinjal shoot and fruit borer [Mannan et. al 2003].

Promoters claim that Bt brinjal is pesticide free. It is called "***Poka bihin begun***" (no-pest brinjal) meaning that it does not require use of pesticide for the most common pest, the Fruit and Shoot Borer (FSB). Therefore, GM crops are claimed to be safe because they do not need applications of a huge amount of pesticides. Interestingly, the IFPRI study did not claim 'no use of pesticides', but claimed there was 39 percent reduction in the quantity of pesticides applied and 51 percent reduction in the number of pesticide applications [IFPRI, 2019]. Although the major promotional message to the farmers was Bt brinjal does not require any application of pesticides and not merely reduction in the use of pesticide.

But the UBINIG field study found a different reality. The farmers had to use huge amounts of pesticides recommended by the supervising authorities of BARI and DAE. These included Comfidor, Ektara, Admasar, Dithane M-45, Bavistin, Thiovit, Basudin, Furadan, Borax, Demsa granular, Vim powder, Admire, 200sl (Bayer crop science), Bleaching powder, Heckel, Salclox, Diazinon etc. among the many other Insecticides and Fungicide sprayed, as provided by DAE. In the booklet distributed to some of the farmers, they recommended organic pesticides such as Neem seeds, Neem oil, powder soap, and Trix. Among the chemical pesticides Malathion, Omite, and Bavistin were suggested for different pest/disease attacks. It seems that in real situations, the supervising authorities were giving more pesticides than those recommended because of the different kinds of pest attacks.

In the field investigation of Bt brinjal's second round of field cultivation, pesticide use was more prominent than in the first round. Different pesticides were used several times, beginning from transplanting to growth, development to bearing and harvesting of fruits. The major pests observed in the Bt brinjal field included viruses, fungi, insects and mites. The virus infection included tulshi virus and mosaic virus. The fungi appeared as root rot, stem rot, wilting, leaf spot and fruit rot. The insects included aphids, leaf curlings, whiteflies, sucking insects, fruit and shoot borer, red mites, and many others. Thirty-five types of pesticides including acaricide, insecticide and fungicide were sprayed several times in the Bt brinjal fields, as per the directions of the supervising officials.

Five banned insecticides including Basudin, Bidrin, Darsbun, Diazinon and Furadan were used in different Btbrinjal fields. Thirty other pesticides used were not

from the list of 76 pesticides recommended for brinjal crop production in Bangladesh [UBINIG, 2015].

Hiring Liars and Propagandists Instead of Evidence-based Research

Mark Lynas is a frequent contributor and researcher at the Cornell Alliance for Science visited Bangladeshi Bt brinjal farmers, along with various scientists and others from Cornell University and the Bangladesh Agricultural Research Institute. His organized visit was aimed to make everything successful. He tried to counter the reports written by the Bangladeshi journalists [New Age, 2014] as false! He visited the same Bt brinjal farmer and found (!) the crop in good health and the farmer happy [Lynas, 2014].

Media attention to Mark Lynas is generated by mostly the drama he draws from his own life. He claims, his life begins as "the first anti-GMO activist in the world", but ends as an avid GMO supporter, desperate to make amends for the movement he started. Bill Gates' Foundation has set up a position for Mark Lynas at Cornell, as part of the controversial Cornell Alliance for Science. This allows Lynas to do paid promotion for GMOs "to the exclusion of almost everything else" [GMW, 2015].

In the response to the article, published as a letter to the Editor on 4 May, 2015, Anne Lappe of Small Planet Institute said "Mark Lynas profile of one farmer in Bangladesh does not represent the facts on the ground about the genetically engineered eggplant there. The trials of the new variety of eggplant have actually had very poor results: genetic engineering did not protect plants from most pests and have led to crop loss and debt for farmers". Also she revealed that "Mr. Lynas' Bangladesh visit was organized by the new Cornell Alliance for Science, funded by a $5.6 million grant from the Gates Foundation, that is promoting biotechnology, not dispassionately reviewing the science" [Akhter, 2015].

BBC Panorama: A Scandalous Promotion of Bt brinjal

BBC Panorama's programme, 'GM Food: Cultivating Fear', aired on 8 June, 2015 featured the pro-GMO campaigner Mark Lynas visiting an insecticidal Bt brinjal field in Bangladesh and enthusing about the performance of the crop, claiming 90% success for this controversial GM crop . The presenter Tom Heap, and his friend, GMO promoter Mark Lynas, had grossly misrepresented the so-called success of the brinjal crop.

Faisal Rahman, staff correspondent for the United News of Bangladesh (UNB) and the author of the report titled '*Bt brinjal turns out to be 'upset case' for farmers*' based on field visits and telephone interviews with farmers growing Bt brinjal in the second year Bt brinjal cultivation, challenged that there is no evidence to support the claim.

Faisal Rahman's report concluded that *"The cultivation of genetically engineered Bt brinjal in the country's several districts has cost the farmers their fortunes again this year as the plants have either died out prematurely or fruited very insignificantly compared to the locally available varieties.*" His evidence,

together with subsequent investigations by GMWatch, casts serious doubt on the credibility of the BBC Panorama programme [Robinson, 2015].

BBC Panorama featured the so-called success story of a farmer Hafizur Rahman, who was visited by Mark Lynas before. Lynas claimed that the Bt brinjal had "nearly doubled" productivity and that Hafizur Rahman had been able to sell the crop labelled "insecticide free". Lynas concluded, "Now, with increased profits, he looked forward to being able to lift his family further out of poverty." But after tracking down farmer Hafizur Rahman, UBINIG found almost every element of the Lynas narrative was misleading or false.

Visiting Hafizur Rahman UBINIG found that far from being a poor farmer that the GM crop is helping to lift out of poverty, as Lynas claimed, Hafizur Rahman is actually "a Polytechnic Graduate" and "well off commercial vegetable farmer". And the story about the GM crop enabling him to dispense with agrochemicals was far from the truth – multiple chemicals, including pesticides, were used on the crop. The farmer also complained that the Bt brinjal had a "rough surface and gets soft very quickly", unlike the traditional variety which is "shiny and remains fresh for a longer time" [GMW, 2015].

Two complaints were lodged to the Editorial Standard Committee (ESC) of the BBC Trust that its Panorama film **'GM Food: Cultivating Fear'**[2], broadcasted in June 2015, was biased and inaccurate and that it '*misled the audience by making a claim of success for a GM aubergine crop which is not supported by the evidence'*. BBC failed to provide sources for the 90% success rate and only referred to Dr Frank Shotkoski, director of the Agricultural Biotechnology Support Project II (ABSPII) programme at Cornell University [GMW, 2015].

Conclusion

Bt brinjal started with Monsanto as a proprietary owner of the technology, but the real game was played by ABSPII of USAID and the Cornell University backed by Bill Gates Foundation. Fortunately, Bangladesh land and environment has rejected the seed. It simply does not grow or give fruits. That's why they need propagandists like Mark Lynas and the so-called scientists to prove the 27,000 farmers of Bangladesh are happily (!) cultivating Bt brinjal.

And of course, you need Bill Gates to fund blatant lies, crooked science, commercial propaganda and destruction of agriculture and biodiversity of countries like Bangladesh.

[2] "BBC One - Panorama, GM Food - Cultivating Fear." *BBC*. https://www.bbc.co.uk/programmes/b05yy6k4

References

- Akhter, 2020. Akhter, Farida Aubergine Story: Local Varieties exist, not GMOs The New Age, 17 May, 2020 https://www.newagebd.net/article/106595/local-varieties-exist-not-gmos
- Conrow, 2019. Conrow, Joan, Study confirms that GMO eggplant cuts pesticide use in Bangladesh, Cornell Alliance for Science, 7 March, 2019 https://allianceforscience.cornell.edu/blog/2019/03/study-confirms-gmo-eggplant-cuts-pesticide-use-bangladesh/
- Akhter, 2016. Akhter, Farida "Put a label on it: Consumers have the right to know what they are buying" Dhaka Tribune, 4 March 2016 http://ubinig.org/index.php/home/showAerticle/86/english/Farida-Akhter/Bt-Brinjal:-Put-a-label-on-it
- Shelton, et al, 2020. Shelton AM, Sarwer SH, Hossain MJ, Brookes G and Paranjape V (2020) Impact of Bt Brinjal Cultivation in the Market Value Chain in Five Districts of Bangladesh. Front. Bioeng. Biotechnol. 8:498. doi: 10.3389/fbioe.2020.00498, 25 May, 2020
- Conrow, 2020. Conrow, Joan "Bangladeshi farmers reap higher yields, profits from Bt eggplant" , CornellCALS, May 28, 2020 https://cals.cornell.edu/news/bangladeshi-farmers-reap-higher-yields-profits-bt-eggplant
- CCR, 2015. Corporate Crime Reporter; Gates Foundation Backed Pro-GMO Cornell Alliance for Science On the Attack, March 5, 2015 https://www.corporatecrimereporter.com/news/200/gates-foundation-backed-pro-gmo-cornell-alliance-science-attack/
- GMW, 2015. GM Watch, "Propaganda over facts? BBC Panorama and Bt brinjal 28 July, 2015 https://gmwatch.org/en/news/latest-news/16320
- Ahmed, 2013. Ahmed, Reaz Brinjal modified: Bangladesh set to join elusive club of 28 GM crop growing countries Daily Star July 11 2013. http://www.thedailystar.net/beta2/news/brinjal-modified/
- UBINIG, 2013. UBINIG, "Bangladesh does not need Bt brinjal: The approval story" 20 November 2013 unpublished
- NTV, 2015. NTV online, "US University honors Sheikh Hasina" 20 May, 2015 https://en.ntvbd.com/bangladesh/4584/US-univ-honours-Sheikh-Hasina
- UBINIG, 2015. UBINIG, "Bt brinjal under Life Support" Experiences of farmers in the second round field cultivation http://ubinig.org/index.php/home/showAerticle/134/english/UBINIG-/Bt-Brinjal-Is-Under-%E2%80%98LIFE-SUPPORT%E2%80%99
- Ahmed, 2019. Ahmed, Reaz, "5-yr after releasing its first GM crop Bangladesh says farmers gain by adopting Bt brinjal" Dhaka Tribune, 7 March, 2019 https://www.dhakatribune.com/business/2019/03/07/5-yr-after-releasing-its-first-gm-crop-bangladesh-says-farmers-gain-by-adopting-bt-brinjal
- IFPRI, 2019. IFPRI, Bt Brinjal Study: Pesticide Use Falls, But Risk Remains March 7, 2019 http://bangladesh.ifpri.info/2019/03/07/bt-brinjal-study-pesticide-use-falls-but-risk-remains/
- BBS, 2014. Statistical Pocketbook, Bangladesh 2014, Bangladesh Bureau of Statistics, Ministry of Planning, GOB
- UBINIG, 2019. UBINIG 'Adoption' & abandoning of Bt brinjal cultivation: Farmers' Experience Survey: On farm Trials on Bt brinjal Varieties during 2014-15; January, 2019, unpublished http://ubinig.org/index.php/home/showAerticle/207/english/UBINIG/%E2%80%98Adoption%E2%80%99-&-abandoning-of-Bt-brinjal-cultivation:-

Farmers%E2%80%99-Experience-Survey
- Jony & Sobhan, 2016. Jony, Jahangir Alam & M.A. Sobhan "Bt brinjal failed in farmers' field" August 2016 http://ubinig.org/index.php/home/showAerticle/87/english/Jahangir-Alam-Jony-and-M.-A.-Sobhan/Bt-brinjal-failed-in-farmers'-field
- Mannan et al, 2003. Mannan et al, "Screening of Local and Exotic Brinjal Varieties/Cultivars for Resistance to Brinjal Shoot and Fruit Borer, Leucinodes orbonalis Guen" Pakistan Journal of Biological Sciences 6(5): 488-492, 2003 Screening of Local and Exotic Brinjal Varieties/Cultivars for Resistance to Brinjal Shoot and Fruit Borer, Leucinodes orbonalis Guen.
- IFPRI, 2019. Akhter, U. Ahmed et al " Impacts of Bt brinjal (eggplant) technology in Bangladesh", IFPRI, Bangladesh and USAID, August 2019
- New Age, 2014. New Age, "Bt brinjal cultivation ruins Gazipur farmers" May 7, 2014 http://www.newagebd.net/9116/bt-brinjal-farming-ruins-gazipur-farmers/
- Lynas, 2014. Lynas, Mark; "Bt brinjal in Bangladesh: The true story" 8 May, 2014 https://www.marklynas.org/2014/05/bt-brinjal-in-bangladesh-the-true-story/
- GMW, 2015. GM Watch; Mark Lynas accused of fabricating story in the New York Times , 17 May 2015 https://www.gmwatch.org/en/news/latest-news/87-news/archive/2015/16175-mark-lynas-accused-of-fabricating-story-in-the-new-york-times
- Robinson, 2015. Robinson, Claire, and GM Watch "GMO propaganda over facts? BBC Panorama and Bt brinjal" Ecologist 30 July, 2015 https://theecologist.org/2015/jul/30/gmo-propaganda-over-facts-bbc-panorama-and-bt-brinjal
- GMW, 2015. GM Watch "Bangladesh NGO report challenges BBC claim of 90% success for Bt brinjal" 18 November 2015 https://www.gmwatch.org/en/news/archive/2015/16537-bangladesh-ngo-report-challenges-bbc-claim-of-90-success-for-bt-brinjal

LAB MADE BREAST MILK AND LAB MADE MEAT

Vandana Shiva

Technologies are tools and they need to be assessed on ethical, social and ecological criteria as well as in the context of contributing to the wellbeing of all.

The Biodiversity of the soil, of the plants and our gut microbiome is one continuum.

Today, most people are now aware that what you eat directly affects the state of your health. As countless studies have shown, industrial chemical-based food is a major contributor to ill health and a root cause of disease[1].

Despite this, rather than shifting to ecological food and agriculture - which works in alignment with the laws of nature and the ecology of our bodies, Big Tech and the billionaires, with Bill Gates leading the way, are now investing in hyper-industrial food developed in laboratories, beginning with breast milk.

Our first food is milk from the breast. Breast feeding is a living relationship, it is an ecological, biological activity, which deepens the bond between the mother and baby. Breast milk contains all the nutrients for neural development and creates immunity to many diseases. Nutrients and antibodies are passed to the baby, while hormones are released into the mother's body[2].

Breast milk is not a product which can be substituted with industrial products, artificially made in factories and laboratories.

Artificially created milk lacks the many natural benefits found in breast milk. UNICEF estimates that a formula-fed child living in disease-ridden and unhygienic conditions is between 6 and 25 times more likely to die of diarrhea and four times more likely to die of pneumonia than a breastfed child[3].

The mechanized and industrialized vision of society promoted by big business and the industrial Baby Food industry has erodeded the culture of breast feeding, particularly in the western world. The International Breast Feeding Action Network[4] was created primarily aimed at Nestle, the world's leading producer of food for infants.

---

[1] "Food for Health Manifesto." *Navdanya International*, May 1, 2019. https://navdanyainternational.org/publications/manifesto-food-for-health/

[2] CDC. "CDC and Breastfeeding." *Centers for Disease Control and Prevention*. Last modified August 14, 2020. https://www.cdc.gov/breastfeeding/index.htm

[3] "Improving Breastfeeding, Complementary Foods and Feeding Practices." *UNICEF*. https://www.unicef.org/nutrition/index_breastfeeding.html

[4] "IBFAN – International Baby Foods Action Network," n.d. https://www.ibfan.org/

Concern that the dramatic increase in mortality, malnutrition and diarrhoea in very young infants in the developing world was associated with the aggressive marketing of formula for breast milk substitutes, in May 1981 the WHO International Code of Marketing Breast Milk Substitutes passed by 118 votes to 1, the US casting the sole negative vote[5].

Despite the known hazards caused by breast milk substitutes and notwithstanding regulations, the race for developing substitutes for breast milk has intensified.

Bill Gates' climate change investment firm, Breakthrough Energy Ventures, has invested $3.5 million into "Biomilq"[6] which is targeting infant nutrition by attempting to reproduce mother's breast milk in a laboratory as a solution to climate change! No surprise of course that there is a patent pending for Biomilq[7].

Photo: evilpeacock/flickr

The explosion of chronic diseases with the increase in factory farming and industrial food production and processing has already shown that artificially produced food is neither good for people's health nor good for the planet's health.

Those who are contributing to the collapse of the planet and of our wellbeing have joined hands in creating hyper-industrial toxic diets in the name of protecting our health and saving the planet.

The creation of **the Impossible Burger** is a case in point.

The "Impossible Burger", based on vast monocultures of GMO Roundup-sprayed soya cannot be considered a "safe" option, both for its high levels of

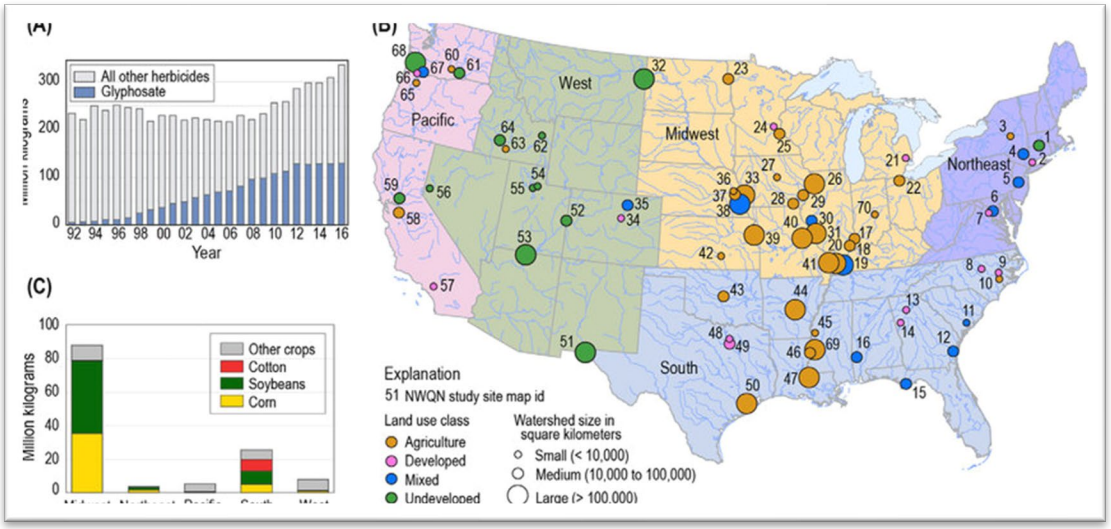
[5] Brady, June Pauline. "Marketing Breast Milk Substitutes: Problems and Perils throughout the World." *Archives of Disease in Childhood* 97, no. 6 (March 14, 2012): 529–532, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3371222/
WHO. "Countries Failing to Stop Harmful Marketing of Breast-Milk Substitutes, Warn WHO and UNICEF." Last modified May 27, 2020. https://www.who.int/news-room/detail/27-05-2020-countries-failing-to-stop-harmful-marketing-of-breast-milk-substitutes-warn-who-and-unicef
[6] Roy, Aditi. "Bill Gates' Climate-Change Investment Firm Bets on Lab-Produced Breast Milk." *CNBC*. Last modified June 16, 2020. https://www.cnbc.com/2020/06/16/biomilq-raises-3point5-million-from-bill-gates-investment-firm.html
"Mother Cultured Breastmilk | BIOMILQ | United States." *BIOMILQ*. https://www.biomilq.com
[7] Watson, Elaine,. "BIOMILQ Raises $3.5m to Fund Mammary Cell-Cultured Human Breastmilk Platform, Disrupt Infant Nutrition Market." *Foodnavigator-Usa.Com*. Last modified June 16, 2020. https://www.foodnavigator-usa.com/Article/2020/06/16/BIOMILQ-raises-3.5m-to-fund-mammary-cell-cultured-human-breastmilk-platform-disrupt-infant-nutrition-market

glyphosate, recognized as being carcinogenic to humans, and for its effect on our gut microbiome[8].

Roundup-sprayed GMO soya has already caused massive ecological devastation[9] as well as chronic worldwide health problems[10][11].

Promoting GMO soya 'plant-based meat' as 'fake and healthy meat" is misleading the eater both in terms of the origins of the burger and, most importantly, on claims of its safety. The Impossible burger is marketed promoting the myth that protein comes essentially from animals and now from "meat" produced in a lab by using GMO soya, manipulating people into forgetting that we have been getting our protein down the ages from the diversity of plants.

As Zen Honeycutt of Moms Across America states: "The levels of glyphosate detected in the Impossible Burger by Health Research Institute Laboratories were 11 times higher than the Beyond Meat Burger. This new product is being marketed as a solution for "healthy" eating, when in fact 11 ppb of glyphosate herbicide consumption can be highly dangerous"[12].



(a) Estimated annual agricultural glyphosate use relative to total herbicide use in the United States; (b) location of National Water Quality Network (NWQN) sites by region and classification by watershed land use; and (c) estimated 2016 regional glyphosate use by crop (Baker, 2018).[13]

---

[8] Shiva, Vandana. "Fake Food, Fake Meat: Big Food's Desperate Attempt to Further the Industrialisation of Food." *Navdanya International*, June 18, 2019. https://navdanyainternational.org/fake-food-fake-meat-big-foods-desperate-attempt-to-further-the-industrialisation-of-food/

[9] "Engineering an Environmental Disaster." *Earthjustice*. Last modified March 27, 2015. https://earthjustice.org/features/engineering-an-environmental-disaster-2

[10] Ellis, Glenn. "Argentina's Bad Seeds." *Al Jazeera*. Last modified March 14, 2013. https://www.aljazeera.com/programmes/peopleandpower/2013/03/201331313434142322.html

[11] Shiva, Vandana. "The Pulse of Life." *The Asian Age*. Last modified January 27, 2016. http://www.asianage.com/columnists/pulse-life-681

[12] Honeycutt, Zen. "GMO Impossible Burger Positive for Carcinogenic Glyphosate." *Moms Across America*. Last modified May 16, 2019. https://www.momsacrossamerica.com/gmo_impossible_burger_positive_for_carcinogenic_glyphosate

[13] Image source: Medalie, Laura & Baker, Nancy & Shoda, Megan & Stone, Wesley & Meyer, Michael & Stets, Edward & Wilson, Michaelah. (2019). Influence of land use and region on

Roundup Ready crops, which have led to an increase of 1,500% in Roundup spraying in the USA, failed in their primary objective of weed control[14]. Weeds evolved resistance to Roundup and have become "superweeds" requiring more and more lethal herbicides. Beneficial plants like amaranth have turned into superweeds. Bill Gates and DARPA are even calling for the use of gene drives to exterminate amaranth[15], a sacred and nutritious food in India, since the Palmer Amaranth became a superweed in the Roundup Ready maize fields of the USA.

The following statement by Pat Brown. [16], CEO & Founder of Impossible Foods is most revealing.

He states, "If there's one thing that we know, it's that when an ancient unimprovable technology counters a better technology that is continuously improvable, it's just a matter of time before the game is over." He added, "I think our investors see this as a $3 trillion opportunity."

Here we have a perfect example of the mechanistic and profit-based mindset which governs the extractive global system of producing food. For Brown and the fake food-promoting billionaires, real living food that nourishes our health is an "unimprovable technology".

The production of fake food is clearly about patents, profits and control with no regard or concept of the essence of life, the web of life and the vital role of living food in our health and that of the environment.

Patents are instruments of extracting royalties and rents by creating an artificial system to displace natural systems that are affordable, biodiverse, renewable and healthy, such as in the case of Monsanto trying to patent seeds to profit from farmers[17] [18]. The Impossible Burger today has no less than 15 patents for the processes of making artificial food[19].

The sudden awakening to "plant-based diets" based on hyper-industrialized processing, including use of GMO soya, is an ontological violation of food as a living system which connects us to the ecosystem and other beings. It also indicates

---

glyphosate and aminomethylphosphonic acid in streams in the USA. Science of The Total Environment. 707. 136008. 10.1016/j.scitotenv.2019.136008.

[14] Benbrook, Charles M. "Trends in Glyphosate Herbicide Use in the United States and Globally." *Environmental Sciences Europe* 28, no. 1 (February 2, 2016): 3. https://enveurope.springeropen.com/articles/10.1186/s12302-016-0070-0

[15] Shiva, Vandana. "Biodiversity , GMOs, & Gene Drives of the Militarised Mind." *Seed Freedom*. Last modified July 7, 2016. https://seedfreedom.info/biodiversity-gmos-gene-drives-of-the-militarised-mind/ https://seedfreedom.info/biodiversity-gmos-gene-drives-of-the-militarised-mind/

[16] Mitroff, Sarah. "Where to Get the Impossible Burger: Red Robin, Burger King, White Castle, Little Caesars and More." *CNET*. https://www.cnet.com/health/where-to-buy-the-impossible-burger-2-0-fast-food-and-chain-restaurants/

[17] Shiva, Vandana. "Monsanto vs Indian Farmers." *Seed Freedom*. Last modified March 27, 2016. https://seedfreedom.info/monsanto-vs-indian-farmers/

[18] "Patents Assigned to Monsanto Technology LLC - Justia Patents Search". https://patents.justia.com/assignee/monsanto-technology-llc

[19] Itzkan, Seth. "Opinion: Software to Swallow — Impossible Foods Should Be Called Impossible Patents." *Medium*. Last modified May 27, 2020. https://medium.com/@sethitzkan/opinion-software-to-swallow-impossible-foods-should-be-called-impossible-patents-71805ecec9de

ignorance of the diversity of cultures that have always used a diversity of plants in their diets.

Artificial lab food reduces real food to industrial raw material and promotes large scale monocultures of industrial farming for supply of raw material.

As Bob Reiter, Bayer's head of research and development in reference to plant-based meat companies: "They are sourcing different types of crops, and that also could create opportunity for us, being a company that is a plant-breeding company"[20].

Oblivious of the clearly growing shift to agroecology and organic food with more and more communities creating local, diversity-based, ecological, systems of growing food, the Poison Cartel continues to manipulate and promote new industrially- based markets.

Biodiversity Festival at Navdanya, 2018

Through fake food, health, indigenous food cultures, evolution, biodiversity, and the web of life are being disparaged as "ancient unimprovable technologies"[21], totally ignorant of the sophisticated knowledges that have evolved in diverse agricultural and food cultures, in diverse climate and ecosystems to sustain and renew the biodiversity, the ecosystems, and the health of people and of the planet which have so far allowed humanity to survive.

[20] "Bayer Sees Potential Future Business in Plant-Based Meat Market." *Reuters*, August 1, 2019. https://www.reuters.com/article/us-bayer-agriculture-food-idUSKCN1UR5SF

[21] Pointing, Charlotte. "Vegan Meat Category Is a '$3 Trillion Opportunity.'" *LIVEKINDLY*, March 6, 2019. https://www.livekindly.co/vegan-meat-category-3-trillion-opportunity/

Our knowledge of Food for Health is being erased.

At a time when movements across the world are growing and getting stronger for a GMO and chemical-poison-free future[22], and independent scientists are establishing the links between cancer and vital organ failure and chemicals such as glyphosate (Roundup) which go hand in hand with GMOs[23], these destructive tools are being given a new lease on life through artificial lab food as Big Tech, Big Food and Big Pharma become one in the Gates Empire.

Artificial, ultra-processed food will further spread chronic diseases. The "market" in sickness and disease will continue to grow. With an expanding market of ill-health, so too profits for the 1% will keep growing.

The reality by now should be clear: Industrial food is the basis of disease, whereas Organic biodiversity-based food is the basis of health[24].

A recent study has shown that a week of eating organic food reduces glyphosate levels by 70% [25].

"Roti, Gujarat

Fake food is building on a century and a half of food imperialism and food colonization of our diverse food knowledges and cultures. Decolonisation of food is at the heart of protecting the health of the planet and people.

Food is the basis of life and freedom. In times of Digital Dictatorship freedom begins with food. Food Freedom is an inviolable right.

[22] "Poison-Free Food and Farming 2030." *Navdanya International*, January 30, 2019. https://navdanyainternational.org/cause/poison-free-food-and-farming-2030/

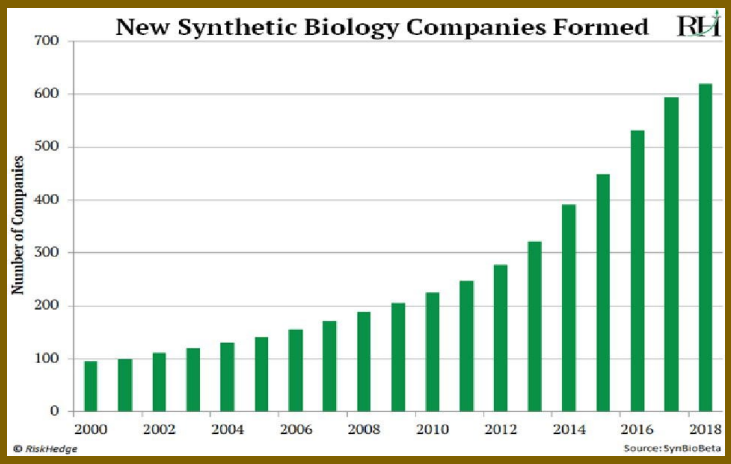
[23] Hedlund, Baum. "Roundup Cancer Study Summaries | Glyphosate Linked to Health Issues." *Baum Hedlund*, n.d. https://www.baumhedlundlaw.com/toxic-tort-law/monsanto-roundup-lawsuit/roundup-cancer-study/ .

[24] Shiva, Vandana. "Ecological Reflections on the Corona Virus." *Jivad – The Vandana Shiva Blog*, March 18, 2020. https://www.navdanya.org/bija-refelections/2020/03/18/ecological-reflections-on-the-corona-virus/

[25] "Organic Diet Intervention Significantly Reduces Urinary Glyphosate Levels in U.S. Children and Adults." *Environmental Research* (August 11, 2020): 109898.

THE WORLD'S TECH FOUNDERS ARE MASSIVELY INVESTING IN SYNTHETIC BIOLOGY

The industry of Synthetic Biology is booming. It has reached a worth of 12 billion dollars over the past decade (of which 3.8 billion dollars make up only last year)- and is expected to double by 2025. In the last twenty years the number of companies specialising in this field have increased from less than 100 in 2000, to over 600 this year.



Synthetic Biology involves reconfiguring the DNA of an organism to create something entirely new, allowing for limitless applications in multiple fields, such as "fake meat" and other "fake foods", to agriculture, to new engineered raw materials, and pharmaceuticals.

Among the largest investors in this sector is Microsoft founder Bill Gates. His early investments include Beyond Meat, Ginkgo Bioworks– which is developing custom-built microbes– as well as Pivot Bio, a biotech startup that focuses on making nitrogen fixing microbes.

Eric Schmidt, co-founder of Google has invested in several synthetic biology companies through early-stage venture capital firm Innovation Endeavours. His synthetic biology portfolio includes Zymergen, Bolt Threads, GRO Biosciences, and Ukko.

Peter Thiel, co-founder of PayPal, Palantir Technologies, and Founders Fund, a world-renowned VC firm and, also, the first investor in Facebook, has invested along with Schmidt in Bolt Threads, and is also backing Synthego and Emerald Cloud Lab.

Marc Andreessen, founder of Netscape and Andreessen Horowitz invested in Benchling—a company that offers tools to engineer DNA digitally.

Other high-profile investors in synthetic biology include Vinod Khosla (Sun Microsystems), Jerry Yang (Yahoo!), Bryan Johnson (Venmo), and Max Levchin (PayPal)[1].

[1] Source: Garret, Olivier. "Why Bill Gates Is Betting Millions On Synthetic Biology." *Forbes*, September 10, 2020. https://www.forbes.com/sites/oliviergarret/2020/09/10/why-bill-gates-is-betting-millions-on-synthetic-biology/

SOFTWARE TO SWALLOW
IMPOSSIBLE FOODS SHOULD BE CALLED IMPOSSIBLE PATENTS

Intellectual Property Model of Food Maintains Harmful Reliance on GMO Grains, Detracts from Regenerative Agriculture, Hastens Soil Loss

Seth Itzkan

Originally Published May 25, 2020 on the Soil4Climate Facebook group[1] and Medium[2]

Impossible Foods Patents — Partial Listing

Impossible Foods should really be called Impossible Patents. It's not food; it's software, intellectual property — 14 patents, in fact, in each bite of Impossible Burger with over 100 additional patents pending for animal proxies from chicken to fish. It's iFood, the next killer app. Just download your flavor. This is likely the appeal for Bill Gates, their über investor. It's a food operating system (FOS), a predecessor, perhaps, to a merger with Microsoft. MS-FOOD. The business model is already etched in Silicon Valley — license core technology (protein synthesis) while seeking vertical integration of supply chains, which, in this case, is not from coders to users, but from genetic engineers to protein seekers.

Will Impossible Foods stand against healthy soils legislation?
That will reveal what their appetite is for.

In this software-as-food scenario, there is no place for nature. Manufacturing of Impossible Burger starts with glyphosate-sprayed soy grown on what was once healthy prairie. It is then infused with heme molecules produced

[1] Soil4Climate Facebook post: https://www.facebook.com/groups/Soil4Climate/permalink/2702432830028454/
[2] Itzkan, Seth. "Opinion: Software to Swallow — Impossible Foods Should Be Called Impossible Patents." *Medium*. Last modified May 27, 2020. https://medium.com/@sethitzkan/opinion-software-to-swallow-impossible-foods-should-be-called-impossible-patents-71805ecec9de

by patented yeast in high-tech labs for the blood-like upgrade. Finally, it ends its journey as a plastic-wrapped puck that some are brave enough to ingest. Just fry with canola oil and the illusion of a meal is complete. As Pat Brown, Impossible Foods founder and CEO openly states, animals are just a "technology" that consumers simply had to "live with."

"animals have just been the technology we have used up until now to produce meat… What consumers value about meat has nothing to do with how it's made. They just live with the fact that it's made from animals."
— Pat Brown, Impossible Foods CEO

The pretense that this wealth-concentrating march of the software industry into the food sector is in any way good for people or the environment is predicated on a comparison with only the worst aspects of animal agriculture. It ignores, entirely, the rapidly growing regenerative movement that is offering so much hope for the planet at this key time, healing landscapes, replenishing aquifers, and mitigating fires. Thus, because of its reliance on grains, tillage, pesticides and fertilizers, fake meat of scale exacerbates depletion of grasslands while undermining a more legitimate solution. As soon as there is a price on soil carbon, however, this misdirection becomes evident. Will Impossible Foods stand against healthy soils legislation? That will reveal what their appetite is for.

Patents Assigned to Impossible Foods Inc.

Patent number — 10287568 - Methods for extracting and purifying non-denatured proteins

Patent number 10273492 - Expression constructs and methods of genetically engineering methylotrophic yeast

Patent 10172380 - Ground meat replicas

Patent number 10172381- Methods and compositions for consumables

Patent number 10093913 - Methods for extracting and purifying non-denatured proteins

Patent number 10039306 - Methods and compositions for consumables

Patent number 10087434 - Methods for extracting and purifying non-denatured proteins

Patent number: 9943096 - Methods and compositions for affecting the flavor and aroma profile of consumables

Patent number: 9938327- Expression constructs and methods of genetically engineering methylotrophic yeast

Patent number: 9833768 - Affinity reagents for protein purification

Patent number: 9826772 - Methods and compositions for affecting the flavor and aroma profile of consumables

Patent number: 9808029- Methods and compositions for affecting the flavor and aroma profile of consumables

Patent number: 9737875 - Affinity reagents for protein purification

Patent number: 9700067- Methods and compositions for affecting the flavor and aroma profile of consumables

Patent number: 9011949 - Methods and compositions for consumables

Resources

Patents Assigned to Impossible Foods Inc., https://patents.justia.com/assignee/impossible-foods-inc

Patrick O. Brown, https://en.wikipedia.org/wiki/Patrick_O._Brown

Interview with David Lee, Impossible Foods, https://futurefoodtechsf.com/interview-with-david-lee-impossible-foods/

Impossible Foods Closes a $75 Million Investment After Achieving Key Milestones, https://www.businesswire.com/news/home/20170801005659/en/Impossible-Foods-Closes-75-Million-Investment-Achieving

Not Impossible Valuations: Impossible Foods Has All the Buzz (And Market Cap), https://www.techsonip.com/news/2019/9/19/not-impossible-valuations-impossible-meat-has-all-the-buzz-and-market-cap

6 Reasons Impossible Burger's CEO Is Wrong About GMO Soy, https://www.ecowatch.com/impossible-burger-gmo-soy-2637794276.html

"Impossible Burger Food Truck in San Francisco", by Dllu is licensed under CC BY-SA 4.0 (https://creativecommons.org/licenses/by-sa/4.0/deed.en).

Gates to a Global Empire

…over Seed, Food, Health, Knowledge and The Earth

A Global Citizens' Report

First edition October 2020

Navdanya Team:

Editors: Vandana Shiva, Caroline Lockhart.

Additional Research and Editing: Carla Ramos Cortés, Elisa Catalini, Ruchi Shroff

Translations: Elisa Catalini, Carla Ramos Cortés

Front Cover Illustration: Federico Zenoni

Layout: Elisa Catalini

Authors:

Vandana Shiva, founder of Navdanya Research Foundation for Science, Technology and Ecology (India) and President of Navdanya International.

Farida Akhter, founding Executive Director of UBINIG, Bangladesh.

Fernando Cabaleiro, Attorney at law (University of Buenos Aires), Naturaleza de Derechos, Argentina.

Community Alliance for Global Justice/AGRA Watch.

GM Watch.

Nicoletta Dentico, journalist, and director of the global health program of Society for International Development (SID).

José Esquinas Alcazar, former Secretary of the FAO Intergovernmental Commission on Genetic Resources for Food and Agriculture and Chairman of the FAO Ethics Committee for Food and Agriculture.

Seth Itzkan, Co-founder and Co-Director of Soil4Climate Inc.

Dru Jay, Coordinator of GeoengineeringMonitor.org, writer and activist in climate justice and Indigenous solidarity movements, based in Montreal, Canada.

Aidé Jiménez-Martínez, MA in Sciences, Director of Regulations of Biosafety, Biodiversity and Genetic Resources, SEMARNAT, Mexico.

Satish Kumar, Founder of Schumacher College, England, UK.

Jonathan Latham, molecular biologist and former genetic engineer. He now edits the website Independent Science News.

Mantasa, Indonesia.

Chito Medina, founding member of MASIPAG (Farmers-Scientists Partnership For Development), and former National Coordinator of the network. Associate Professor of environmental science in a leading university in the Philippines.

Zahra Moloo, Kenya, Investigative journalist, documentary filmmaker and researcher on extractive industries, land rights, conservation and security. ETC Group, based in Montreal, Canada.

Silvia Ribeiro, Uruguay, Journalist, lecturer, writer, and educator on emerging technologies, Latin American Director, ETC Group, based in Mexico City.

Adelita San Vicente, Doctor in Agroecology, Director General of the Primary Sector and Natural Resources, SEMARNAT, Mexico.

Tapsoba Ali de Goamma; Human rights activist; Ecologist; President of the Terre A Vie association; Spokesperson for the Collectif Citoyen pour l'Agroécologie (Citizen's Collective for Agroecology), Burkina Faso.

Jim Thomas, Co-Executive Director and Researcher, focusing on emerging technologies on human rights, biodiversity, equity, and food systems, ETC Group, currently based in Canada.

Timothy Wise, Senior Advisor at the Institute for Agriculture and Trade Policy (IATP).

Navdanya international

TERRE À VIE
Alimentation Souveraine pour un Peuple Souverain

MASIPAG

উবিনীগ
UBINIG

SOIL 4 CLIMATE

CAGJ
Community Alliance for Global Justice

Independent Science News
FOR FOOD AND AGRICULTURE

NATURALEZA DE DERECHOS
PARA NUESTRAS GENERACIONES FUTURAS

etc GROUP

GMWATCH

Full Report webpage