

GMO Bio-Imperialism

GMO Bio-Imperialism

by [Dr. Vandana Shiva](#), [Navdanya International](#)

April 26, 2024

Over the past few decades, GMO crops have been imposed in countries around the world, touted as a solution to food insecurity and malnutrition crises. However, hunger, disease and malnutrition have increased, while biodiversity has declined and toxins have spread. GMO imperialism has destroyed the lives and livelihoods of small farmers and biodiversity in the centers of origin. These centers of biodiversity origin are the cradles of the world's food supply and protection against disease, climate challenges, natural disasters or other obstacles to food production.

In Mexico, which is the center of origin of corn, there has been a long struggle by society and organized communities against GMO imperialism which threatens the subsistence and culture of local peoples. It is following this mobilization that the Mexican society obtained a ban on planting genetically modified corn through a collective lawsuit brought against the companies Bayer-Monsanto, Syngenta and Corteva Agriscience. This ban is still in effect.

Recently, the Mexican government issued an executive order phasing out the use of glyphosate and banning the use of genetically modified corn in tortillas, a staple food. Faced with this decision, the US government, on the basis of the United States-Mexico-Canada Free Trade Agreement (USMCA), activated the dispute resolution mechanism with the aim of canceling the order and forcing the introduction of GMOs into the country.

The Mexican government as well as the non-governmental organizations from Mexico presented their Technical Opinions before this Panel, based on detailed scientific evidence, including new found evidence by Mexico's scientific advisory board CONAHCYT, rooted in scientifically rigorous evidence from academic institutions. This evidence pointed out and warned about the multiple risks that make it pertinent and urgent to stop the presence of genetically manipulated maize in the food of the Mexican population, and as raw material for other industries.

From 12 to 16 March 2024, Navdanya International, together with Latin American partners and the Mexican Government, organized a series of events in Mexico City to build a common strategy against the imposition of new and old GMOs. The mobilization in Mexico City counted on the presence of representatives of Latin American movements such as Argentina, Colombia, Bolivia, Costa Rica and others, in collaboration with Mexican civil society organizations, the Ministry of Agriculture and Rural Development, the Ministry of Environment and Natural Resources and the Ministry of Culture. It was at the Ministry of Culture that the Garden of Milpa, the biodiverse traditional farming system of Mexico, was blessed at the Museum of Corn.

The case of Mexico represents the attempt of a people to protect their biodiverse cultures, their thousand-year-old food heritage, the health of their population and ecosystems. It is the case of a people who demand respect for their sovereignty and represents a beacon of hope for the places where this imposition continues. People have the right to have sovereignty over their health, and that starts with food sovereignty.

However, the GMO agenda has always been about patents and profits, not food and health. Food sovereignty is a high-level concept, because it implies the sovereignty of beings to manage and organize themselves and protect their right to

health. This is why the goal of industrial agriculture has always been to push farmers off the land. It is inherent in the very definition of industrial agriculture. The sovereignty of people, farmers and nature has been violated by the imposition of agrotoxins, GMOs and ultra-processed foods, destroying diversity and ancient food cultures and threatening land, water and biodiversity.

Agribusiness and biotechnology giants are trying to circumvent existing biosafety regulations, such as the Cartagena and Nagoya Protocols of the Convention on Biological Diversity, by subtly making changes to GMO regulations, in order to promote GMOs under new acronyms, such as NBT (New Breeding Techniques), NGT (New Genomic Techniques) or TEA (Techniques of Assisted Evolution). These new GMOs have been silently inserted into the agricultural legislation in force in various countries, with the aim of maintaining patent monopolies in the hands of the chemical and biotechnology giants.

Today, our seed sovereignty is threatened by intellectual property rights and new GMO technologies that have transformed seeds from a common good into a commodity under the control and monopoly of multinational agri-food companies. Impositions continue to take place, violating the sovereignty and rights of people and nature, in furtherance of the corporate agenda. While multinationals get rich by stealing our biodiversity. Faced with this, building relationships, based on common struggle and the vision of an ecological future, contributes to creating international networks of resistance and solidarity. Together, as global citizens, we must unite to oppose the bullying of GMOs and defend our seeds.

Citizens are rising up against the unscientific, anti-democratic and anti-ecological imposition of GMOs by multinationals and the US government. The first generation of GMOs failed. But multinationals continue to impose genetically modified organisms, or new GMOs, in centers of diversity. They continue to shift the narrative towards framing nature and

biodiversity as commodities to be commercialized and monopolized. In the wake of Mexico's battle against the United States, it is necessary to support and strengthen international solidarity against the corporate imposition of industrial food systems.

[Connect with Dr. Vandana Shiva](#)

Cover image credit: [Nguyen_Khac](#)

From Bird Flu to Climate Snakes

[From Bird Flu to Climate Snakes](#)

by [Breeauna Sagdal](#), [Brownstone Institute](#)

April 25, 2024

Seasoned veterinarians and livestock producers alike have been scratching their heads trying to understand the media's response to the avian flu. Headlines across [every major news outlet](#) warn of humans becoming infected with the "deadly" bird flu after one reported case of pink-eye in a human.

The entire narrative is predicated upon a long-disputed claim that Covid-19 was the result of a zoonotic jump—the famed Wuhan bat wet-market theory.

While the source of Covid is hotly contested within the scientific community, the policy vehicle at the center of this

dialectic began years prior to Sars-CoV-2 and is quite resolute in force and effect.

In 2016, the Gates Foundation donated to the World Health Organization to create the OneHealth Initiative. Since 2020, the [CDC has adopted and implemented](#) the OneHealth Initiative to build a “collaborative, multisectoral, and transdisciplinary approach—working at the local, regional, national, and global levels—with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment.”

In the aftermath of Covid-19, the OneHealth Initiative began taking shape, due largely in part to millions of tax dollars appropriated through ARP (American Rescue Plan) funding.

Through its APHIS (Animal and Plant Health Investigation System) the USDA (United States Department of Agriculture) was given [\\$300 million in 2021 to begin implementing](#) “a risk-based, comprehensive, integrated disease monitoring and surveillance system domestically...to build additional capacity for zoonotic disease surveillance and prevention,” globally.

“The One Health concept recognizes that the health of people, animals, and the environment are all linked,” said USDA Under Secretary for Marketing and Regulatory Programs Jenny Lester Moffitt.

According to the [USDA’s press release](#), the Biden-Harris administration’s OneHealth approach will also help to ensure “new markets and streams of income for farmers and producers using climate smart food and forestry practices,” by “making historic investments in infrastructure and clean energy capabilities in rural America.”

In other words, the federal government is using regulatory enforcement to intervene in the marketplace, in addition to subsidizing corporations with tax dollars to direct a planned economic outcome—ending meat consumption.

Climate-Smart Commodities – Planning the Economy through Subsidized Intervention

Under the recently announced [Climate-Smart Commodities program](#), the USDA has appropriated \$3.1 billion in tax subsidies to one hundred and forty-one new private Climate-Smart projects, ranging from carbon sequestration to Climate-Smart meat and forestry practices.

Private investors such as Amazon founder [Jeff Bezos](#) – who just committed \$1 billion to the development of lab cultured meat-like molds, and meat grown in petri dishes, to

[Ballpark, formerly](#) known for its hot dogs but is now harvesting python meat, is rushing to cash in on this new industry, and the OneHealth/USDA certification program.

Culling The Herd – Regulatory Intervention in the Marketplace

Meanwhile, the last vestiges of America's food freedom and decentralized food sources are quietly being targeted by the full force of the federal government.

The once voluntary APHIS System is poised to become the [mandatory APHIS-15](#), which among many other changes, “the system will be renamed Animal Health, Disease, and Pest Surveillance and Management System, USDA/APHIS-15. This system is used by APHIS to collect, manage, and evaluate animal health data for disease and pest control and surveillance programs.”

Among those “many changes” that APHIS-15 is undergoing, one should be of particular interest to the public—the removal of all references to the [voluntary*](#) Bovine Johne's Disease Control Program.

“Updating the authority for maintenance of the system to remove reference to the Bovine Johne's Disease Control Program.”

In addition to removing references to the once-voluntary herd

culling program, the [USDA is also implementing mandatory RFID ear tags in cattle and bison.](#)

According to the USDA/APHIS-15, expanded authority places disease tracing in their jurisdiction and the radio frequency ear tags are necessary for the “rapid and accurate recordkeeping for this volume of animals and movement,” which they say “is not achievable without electronic systems.”

The notice clearly spells out that RFID tags “may be read without restraint as the animal goes past an electronic reader.”

“Once the reader scans the tag, the electronically collected tag number can be rapidly and accurately transmitted from the reader to a connected electronic database.”

However, industry leaders and lawmakers alike have said the database will be used to track vaccination history and movement, and that this data may be used to impact the market rate of cattle and bison at the time of processing.

Centralized Control of Processing/Production via Public-Private Partnership Agreements

In addition to the vast new authority of the USDA funded through the OneHealth Initiative, and the ARP, the EPA has also created its own unique set of regulatory burdens upon the entire meat industry.

On March 25, 2024, the EPA finalized a new set of Clean Water Act rule changes to limit nitrogen and phosphorus “pollutants” in downstream water treatment facilities from processing facilities. While the EPA’s interpretation of authority and jurisdiction over wastewater is concerning long-term, the broader context of consolidated processing under four multinational meat-packing companies is of much greater concern for the immediate future.

With few exceptions, in the United States it is illegal to

sell meat without a USDA certification. Currently, the only way to access USDA certification is through a USDA-certified processing facility.

According to the EPA, the new rules will impact up to 845 processing facilities nationwide, unless facilities drastically limit the amount of meat they process each year.

With processing capabilities being the number one barrier to market for livestock producers, and billions of dollars in grants being awarded to Climate-Smart food substitutes, the amount of government intervention into the marketplace becomes very clear.

The Rise of Authoritarianism and Economic Fascism – Control the Supply

The United States, once a consumer-demand free market society, is currently witnessing the use of government force, and intervention tactics to steer and manipulate the marketplace. [Similar to 1930's Italy](#), this is being achieved by the state within the state, through the use of selectionism, protectionism, and economic planning between public-private partnership agreements.

The long-term and unavoidable problem with economic fascism is that it leads to authoritarian and centralized control, from which escape is impossible.

As each industry becomes centralized and consolidated under the few, consumer choice simultaneously disappears. As choice disappears, so does the ability of the individual to meet their specific and unique needs.

Eventually, the individual no longer serves a role outside of its usefulness to the state—the final exhale before the last python squeeze.

Bio-imperialism vs. Bio-diversity

[Bio-imperialism vs. Bio-diversity](#)

by [Navdanya International](#)

April 15, 2024

Global Context: Seeds and GMOs

Seeds are emblematic of the connections between our lives, our food, our health and our freedom. They are the first link in the food chain. They embody our heritage and enfold the future evolution of life. The cultivation of seeds and their free exchange among farmers is the core foundation of our biodiversity and our food security. To have control over seeds is to have control over our lives, our food and our freedom.

Bio-imperialism severely threatens this freedom today through intellectual property rights. Old and new GMO technologies that have transformed seeds from a commons shared by farmers, to a commodity under the control and monopoly of agribusiness corporations. This imperialism seeks to appropriate the world's seeds, destroying the lives and livelihoods of peasant communities, as well as biodiversity, but more seriously, in territories recognized as centers of origin. These centers of origin of biodiversity are the cradles of the world's food supply, and the protection against plague, climate challenges,

natural disasters or other hindrances to food production.

Also read: [Resisting GMO Imperialism – Events in Mexico – March 2024](#)

Over the last few decades, GMO crops have been imposed in countries all over the world, advertised as a solution to food insecurity and the malnutrition crisis. However, hunger, disease and malnutrition have increased, while biodiversity has declined and toxins have spread. Corporations have forced the introduction of genetically manipulated seeds to impose Food Imperialism through various tools such as regulatory frameworks for intellectual property of seeds, such as UPOV 91, and other legal mechanisms like Trade Dispute Settlement Panels. GMO imperialism has destroyed the lives and livelihoods of small farmers and biodiversity around the world and especially in these centers of origin.

Most recently, agribusiness and biotech giants are attempting to bypass existing biosafety regulations, such as the Convention on Biological Diversity's Cartagena and Nagoya Protocols by quietly making changes to GMO regulation around the world, in order to promote these new GMOs under new acronyms, such as NBTs (New Breeding Techniques), NGTs (New Genomic Techniques), or TEAs (Techniques of Assisted Evolution). These new GMOs have been silently dovetailing into different countries' existing agricultural legislation, with the aim still being patent monopolies in the hands of the big chemical and biotechnology giants.

This deregulation would allow gene edited crops to:

- Be commercialized with no environmental or consumption safety testing
- Require no labeling

- Have little to no traceability
- Be free from public disclosure of gene edited organisms
- Mass deregulation
- Be patented without disclosure

These new GMOs are leaving farmers, and citizens completely in the dark as to what is in their food and are an attempt to subvert sovereign governments, the United Nations Convention on Biological Diversity and biosafety laws, with their imposition. The biotech industry has claimed that their gene edited products, including seed, plants, microorganism, and animals, are to be considered the same as their conventional counterparts. This deregulation of old and new GMOs absolves the biotech industry from any responsibility and is a continued attack on food sovereignty.

Agribusiness companies have not solved any issue for humanity on the pretext of false narratives around GMOs solving problems of food supplies. The true basis of the world's food supply is free seeds, the heritage of humanity that contain the answers to pests, climate challenges and other threats to the world's production of healthy and sufficient food, not GMOs and Bio-Imperialism. GMOs cannot be forced upon communities, violating norms of democracy and freedom.

All over the world, citizens are rising against the unscientific, undemocratic, anti-ecological imposition of GMOs by corporations. The first generation of GMOs has failed, but corporations continue to impose gene-edited organisms, or new GMOs, in centers of diversity. They continue to shift their narrative towards framing nature and biodiversity as commodities for commercialization and patent monopolies.

Imposition of GM corn in Mexico has global ramifications

In Mexico, which is the center of origin of maize, just as in other centers of biodiversity, there has been a long struggle by society and organized communities against GMO imperialism threatening the subsistence and culture of its peoples. To

date, Mexican society has achieved a ban on the planting of GM maize in Mexico through a class action lawsuit filed against the companies like Bayer-Monsanto, Syngenta and Cortiva Agriscience. This ban is still in force, which since 2013 has prevented the planting of genetically manipulated maize in Mexican territories.

Mexican NGOs have bravely continued to resist genetically modified maize to strengthen access to healthy, sustainable and culturally appropriate food for all people; to defend the food sovereignty of peasant and indigenous communities, responsible for developing the 59 breeds and thousands of varieties of maize existing in Mexico, which are also part of the milpa, a holistic, sustainable and biodiverse system that involves other staple foods such as beans, chili peppers, squash, quelites and amaranth.

Recently, the Mexican government issued an executive order that proposes the gradual prohibition of the use of glyphosate and the use of GM maize in food products, such as tortillas, a staple food for Mexicans. GMOs compromise access to healthy, sustainable, culturally appropriate foods free of genetically modified organisms. Faced with this decision, the U.S. government, based on the U.S.-Mexico-Canada Free Trade Agreement (USMCA), and under the duress, of agribusiness lobby, installed a dispute settlement panel to reject the Mexican government's decision to restrict the use of genetically manipulated (modified) maize in human food and the importation of glyphosate, citing lack of scientific evidence of their harm. This Dispute Settlement Panel neglects the risks to human health, the environment and biodiversity associated with genetically manipulated maize. In addition, it jeopardizes the food sovereignty of the entire Mexican population, since maize is an indispensable food.

In response to this omission, on March 15th, non-governmental organizations from Mexico presented their Technical Opinions before the Panel, arguments based on reliable scientific

evidence, including [new found evidence by Mexico's scientific advisory board CONAHCYT](#), rooted in scientifically rigorous evidence from academic institutions. This evidence points out and warns about the multiple risks that make it pertinent and urgent to stop the presence of genetically manipulated maize in the food of the Mexican population, and as raw material for other industries.

In stark contrast, the [US refused to do new experiments](#) and engage in real science and continued to stick to pseudo-science funded by the same agribusinesses that produce this GM corn and [make the unscientific claim that it is safe to consume](#) this GM corn.

The case of Mexico is a people's attempt to guard their biodiverse cultures, inheritance, food, health and fields. It is a case of a people demanding their sovereignty be respected. It is a statement to the world and to agribusiness that they cannot continue to impose their system that violates and destroys sovereignty at all these levels, and has wave after wave destroyed health, the land and biodiversity.

On March 5, 2024 Mexico published its [formal response to the dispute](#) where its submission presented evidence supporting the implementation of precautionary measures aimed at safeguarding consumers from potential health risks associated with imported GM corn from the U.S. and residues of glyphosate. They noted that the scientific data regarding the safety of GMOs presented by the U.S. was outdated, with a significant portion originating from industry-sponsored studies lacking peer-reviewed support. They pointed out that the regulatory process in the U.S. lacks sufficient stringency to guarantee the safety of products for consumption by Mexicans. Furthermore, the [Mexican submission highlighted](#) that Genetically modified (GM) corn, designed to eliminate insect pests, has strong potential to pose negative effects on non-target animals with research that has demonstrated that mammals can experience harm to their digestive systems due to a GM trait that targets

the guts of pests, leading to unintended consequences.

While the US claimed that Mexico's ban is "unscientific", [IATP Senior Advisor Timothy A. Wise highlighted](#) that Mexico's response "refutes that claim, presenting hundreds of academic studies that show cause for concern about human health and the threat to native corn diversity."

Significantly, The US claim that Mexico's ban is unscientific is completely unjustified as the US never signed onto the Convention on Biological Diversity and the Cartagena Protocol on Biosafety. It has no biosafety regulatory organism to judge the safety of these GM foods. It is based instead on "substantial equivalence" which is [not enough to be considered as a safety assessment in itself](#). This principle doesn't prioritize consumer protection from health risks nor does it provide consumers with comprehensive information regarding the actual level of risks and hazards associated with "novel foods" (in this case GMO foods) compared to traditional ones.

In its formal submission to the trade dispute panel, Canada aligned itself with the arguments presented by the US government, claiming the safety of genetically modified (GM) corn for consumption in Mexico. However, CBAN's ([Canadian Biotechnology Action Network](#))'s response [refuted this stance by asserting that scientific evidence supported Mexico's precautionary measures](#), particularly due to the extensive use of minimally processed corn in the daily diet of the majority of Mexicans.

[Lucy Sharratt of the Canadian Biotechnology Action Network \(CBAN\)](#), stated that, "Mexico is a sovereign nation with the right to determine the future of its food supply and its needs to take action to protect native corn from GM contamination."

Globally, Mexico's case is important due to the current context of the world. Due to the industrial food system, we are seeing the rise of chronic diseases rooted in metabolic

disorders, increasing ecological disasters, lack of water and declining biodiversity. Mexico defending its cultural and food heritage is equivalent to a country taking a stand, backed by scientific evidence and government support, against the continuation of these multiple crises.

Furthermore, the significance of this case is that an unfavorable resolution for Mexico in this Panel, would limit Mexican people's right to decide which seeds to plant and which types of maize to feed themselves with. This directly jeopardizes the traditional Mexican cuisine which is central to the cultural identity of the communities that practice and transmit it from generation to generation and has been [recognised as Intangible Cultural Heritage of Humanity by UNESCO](#).

This in turn also has the potential to devastatingly affect all other centers of biodiversity and interconnected food cultures around the world who will continue to face such attacks on their sovereignty.

Mexico holds the legacy of being [one of the first constitutions globally](#) to incorporate enforceable social rights, encompassing health and a clean environment (Article 4). Thus, a right to health is [a legally enforceable provision](#) under its national constitution. This along with achieving [universal health coverage \(UHC\) for its 100 million citizens](#) makes Mexico a country that continues to stand up for biodiversity, for health, for the environment.

Convergence: Interconnected strength, interconnected resistance

In the face of this local and global Bio-imperialism, Navdanya International joined together with the campaign Sin Maiz No Hay País, and Via Orgánica, along with the Ministry of the Environment and Natural Resources (SEMARNAT), the Ministry of Agriculture and Rural Development (SADER) and the Ministry of Culture, along with other Latin American movements to organize

events from March 12th to 16th in Mexico City to carve a common strategy against the further imposition of new and old GMOs around the world, sharing experiences, struggles and solidarity in defense of Biodiversity, Food and Seed Freedom, through strengthening the support and solidarity, in cultivating and connecting different organizations, movements and people.

These meetings and convergences helped create a gathering place for solidarity by bringing together representatives from movements from all over Latin America and beyond to demonstrate that this struggle goes beyond individual borders. All over the world the impositions continue to take place, directly violating the sovereignty and rights of people and nature, in favor of corporate agenda.

José Bernardo Magdaleno Velazco (Nino), President of the Peasant Union, Totikés, Chiapas emphasized that “we are not alone in this fight”. Together with activists and organizations such as the Campaña Nacional Sin Maíz No Hay País, Semillas de Vida, Vía Organica, Regeneration International, Bloque Verde, Probioma, Naturaleza De Derechos, and Semillas de Identidad- Colombia, Navdanya International joined the demand for governments around the world to stop genetically manipulated seeds, which threaten the survival of food and agricultural systems based on biological and cultural diversity.

These events carved a convergence of movements, to stand in defense of our biocultural diversity and food heritage across the world, in resistance to old GMOs and new GMOs.

It is in this coming together of different movements and voices united in their goal of food and seed sovereignty that these events in Mexico led to the emergence of an interconnected strength and resistance. Where the nurturing of solidarity and a reminder of a common resistance despite varied contexts, echoed and re-iterated that together, we are

all more than the sum of the parts. Building relationships and connections, across organizations, across movements and beyond countries is necessary for effectively resisting this GMO imperialism. This interconnected strength is what we have to tap into, to continue our struggle in defense of life, diversity and freedom.

Significance: Food sovereignty as a driving force for political sovereignty

The current socio-political context of Mexico's demand of autonomy based on being a center of diversity and cultural heritage is unique because food sovereignty is the driving force behind the political sovereignty of the people. This reiterates that every kind of autonomy is rooted in food and seed.

At the event held on **March 12, 2024** at Mexican Ministry of Agriculture and Rural Development (SADER), Mexico City called "In Defense of Food Sovereignty", Dr. Vandana Shiva, President of Navdanya International in her keynote lecture on food sovereignty, mentioned that it was so important to celebrate cultures where cultural diversity and biodiversity are not seen as separate. She added that "Food sovereignty is a high level concept, because it implies the sovereignty of beings to manage and organize themselves toward health." The cultivation of biodiversity has to imply sovereignty at all levels. Sovereignty is needed at all levels for organisms to be able to freely develop and evolve, self organize toward health.

Leydy Pech, evocatively added in the same event that "In Maya, we have no word for GMO, we call them instead seeds that have no heart, seeds with no life." Furthermore, she asked a significant question, potent for everyone around the world: "Our seeds, our knowledge is our inheritance, with this destruction what will we inherit in the future?"

As also highlighted by Jesús Ramírez Cuevas, general coordinator of social communication and spokesperson for the

Government of the Mexican Republic, “Mexican sovereignty starts with food sovereignty.” It is food sovereignty and the sovereignty of all interconnected beings to self-organize and grow with health that holds the power of resistance politically, economically and socially.

GMO imperialism is an attack on this sovereignty of all interconnected beings at all levels of self organization. It is an attack on life itself.

As Leydy Pech echoed: “You cannot call what goes against life, development”. Dr. María Elena Álvarez-Buylla Roces, general director of the National Council of humanities, sciences and technologies (CONAHCYT) said that “On a global level the deregulation and imposition of GMOs and toxic food systems is a denial of sovereignty and right to health on multiple levels.” She added that Mexico’s success in asserting its own sovereignty on seeds and food policies would be a beacon for other countries to be able to assert their food sovereignty and seed freedom in turn.

Biodiversity at all levels

A Seminar on Biodiversity Protection titled “Protection and Conservation of Biodiversity in Centers of Origin” was held on **March 15, 2024** at the Mexican Ministry of Environment and Natural Resources (SEMARNAT) Headquarters, Mexico City. This seminar analyzed and discussed strategies to conserve and protect natural resources in countries that are centers of origin and genetic diversity of species, through a dialogues, work round tables, and discussions for common strategy with key actors of the Mexican government, representatives from Latin America, Asia, the United States, and others in the protection and conservation of biodiversity in Latin America and other regions.

Maestro Iván Rico López, Subsecretary of Environmental Planning and Policy, SEMARNAT highlighted that “Megadiverse countries, the centers of origin of crop varieties, have

greater responsibility in protecting the world's biodiversity. We have learned that our plant genetic heritage is our cultural heritage. Natural and Social aspects go hand in hand, as those who have preserved the genetic diversity are the indigenous peoples."

Columba López, Director of the Commission for Natural Resources and Rural Development, CORENADR, emphasized the key to this biodiversity being in the hands of the farmers. It is the farmers who are the custodians of these biodiverse foods, cultures, seeds, knowledges. She said that "We work on native seeds in our Seed Houses. We cultivate and replicate seeds through agroecological practices in the field. We develop seeds that adapt in the mountains or near the water, that are climate resilient and we do it through farmers' participatory breeding."

Biodiversity at all levels produces health, diversity in our farms, our seed, our foods, our cultures etc. having a biodiverse field in line with local ecosystem and cultural heritage, gives us a diversity of foods, and a diversity of food cultures. This is how we create health first in our fields all the way to our plates and our guts.

Dr. Vandana Shiva, of Navdanya International highlighted that, "Indigenous peoples and communities know that seeds continuously evolve. By turning biodiversity into technology they (corporations) deny the creativity of biodiversity, they go against how nature works. Diversity is a living necessity." She further reiterated that, "The colonizing mentality considers living beings as disposable and nature as raw material to be extracted. Mexico is recovering the dignity of natural resources, which are the basis of our health and well-being & the health of the planet."

Similarly, at the event held on **March 16, 2024** held at Cencalli, Museo de maíz y centro de la cultura alimentaria, Los Pinos, Ciudad de México, in the presence of the Alejandra

Frausto Guerrero, from the Ministry of Culture, Victor Sanchez reaffirmed the need to resist the food imperialism that destroys our cultures by defending our biodiversity and strengthening seed freedom. Navdanya International co-organized this event with [Campaña Nacional Sin Maíz No Hay País](#), [Via Organica](#) and [Regeneration International](#). Andre Leu, Director of Regeneration International, discussed the latest evidence of negative health effects caused by exposure to glyphosate: “There’s scientific evidence about the correlations between the introduction of glyphosate and transgenic crops and the increase in diseases such as cancer, obesity, kidney failure and autism.”

Mercedes López Martínez from [Vía Orgánica](#), Mexico, discussed the great importance of protecting small farmers and indigenous communities as the backbone of a thriving food culture. Miguel Ángel Crespo of [Probioma, Bolivia](#) shared how, “The fight to protect biodiversity and genetic resources is also political, legal and scientific.”

It is this interconnection of diversity at all levels, including diversity of organizations and movements reflecting the interconnection and sovereignty of organisms that is needed to resist GMO imperialism from the ground up.

Also read:

[Vandana Shiva makes an International call to support Mexico in the defense of Seed Freedom and Biodiversity](#)

[Events in Mexico: Resisting GMO Imperialism](#)

[Joint Declaration in Defense of our Biodiversity, Seed and Food Freedom – Resisting GMO Imperialism](#)

[Open Letter from Diverse Women for Diversity to World Leaders](#)

[US pressure to impose GM corn in Mexico threatens global](#)

The Fury of Europe's Farmers Shocks EU Technocrats

[The Fury of Europe's Farmers Shocks EU Technocrats](#)

by [Fraser Myers](#), [Spiked](#)

sourced from [Technocracy News & Trends](#)

April 1, 2024

The continent-wide fury of EU farmers is blazing a trail straight to the heart of Technocracy, namely, the green agenda, net zero, and the war on energy and food. The late Rosa Koire warned Europe between 2010-2015 about “the blueprint, the comprehensive plan of action for the 21st century to inventory and control all land, all water, all plants, all minerals, all animals, all construction, all means of production, all energy, all law enforcement, all health care, all food, all education, all information, and all human beings in the world.”

The farmers got it and are now fighting for their lives and livelihoods. Technocrats spin out these suicidal policies using their oracle of pseudoscience as their god. However, it is no god but rather base scientism, which C.S. Lewis

laid bare in his Abolition of Man (1943).

These are those whose intent is to destroy the earth (Rev. 11:18). Will we stop them before it is too late?

~ Technocracy News Editor

Europe's farmers are rising up – and the elites are terrified. In France, farmers recently staged [a four-day 'siege of Paris'](#), blocking major roads around the French capital. In January, thousands of tractors [descended on Berlin in Germany](#), lining the streets leading up to the Brandenburg Gate. In Brussels, farmers have gathered from all over Europe to demonstrate against the EU and pelt the European Parliament with eggs. In the [Netherlands](#), tractors have caused the longest traffic jam in the nation's history, as part of a years-long battle between farmers and the government. This farmers' revolt is now truly Europe-wide. From Portugal to Poland, from Ireland to Italy, almost every EU country has been rocked by protests. So what is driving this populist uprising? What do the farmers want?

Farmers in each country have their own specific grievances, of course. But there is a common root to their anger. What connects them is the European Union's green agenda, which has been imposed on agriculture from on-high. It has made farmers' lives a misery, sacrificing their livelihoods at the altar of climate alarmism. Bureaucrats who have no idea how farmers work and live, have essentially been condemning farms – many of them run by families for generations – to oblivion, all at the stroke of the regulator's pen. And farmers are simply not putting up with it anymore.

The first stirrings of revolt began in 2019, in the Netherlands, with the so-called nitrogen crisis. The Dutch Supreme Court ruled that the government was failing to cut nitrogen pollution to EU-approved levels. In response, the Dutch government promised 'drastic measures' to cut nitrogen

emissions. In all but name, it declared war on its nation's farmers. Suddenly, the government had turned against one of its most important and impressive sectors. You see, the Netherlands, despite its small size, is [the second-largest exporter of food](#) in the entire world, thanks to the world-beating efficiency of its farms. And nitrogen is intrinsic to this efficiency. Fertilisers are rich in nitrogen, and farmers need fertilisers to maximise their crop yields. Nitrogen is also an inevitable byproduct of animal farming. Livestock release ammonia, a compound of nitrogen and hydrogen, through their excrement. The Netherlands has over four million cows, 13million pigs and 104million chickens. Which is a lot of manure and a lot of nitrogen. Any crackdown on nitrogen emissions was always going to hit farmers hard. Even so, the Dutch government's proposals went even further than anyone could have imagined. It said it would buy out thousands of the most polluting farms and simply shut them down. Other farms would have to cull a proportion of their animals. This would mean slaughtering [around half of all the livestock](#) in the Netherlands. In all, this represented an unthinkable act of national economic self-harm.

Thus, the farmers' revolt was born. Huge protests erupted in 2019. After a brief hiatus during the Covid pandemic, they came roaring back in 2021 and 2022. Dutch farmers blocked roads, railways and canal bridges with tractors and hay bales. They defied government bans to bring tractors into the Hague. Tens of thousands took part in the demonstrations. But the Dutch government did not back down. It kept proposing new targets, new measures and new restrictions on nitrogen. In 2022, the government's own figures revealed that around 30 per cent of farms would have to close to meet their targets. And last year, it drew up a list of the 3,000 farms that it wants to forcibly close within the next few years.

All of this has been done with the approval and encouragement of the EU. And there is worse to come in the Netherlands and

beyond. The absurd nitrogen rules that are threatening Dutch farms come from an EU environmental directive that dates back to the 1990s. But the EU's eco-mania has [intensified massively](#) since then. Farmers now have to contend with the drive to Net Zero, too. According to [Laurence Tubiana](#), chief executive of the European Climate Foundation and the architect of the Paris Climate accords, Net Zero will require 'the biggest overhaul of farming since the Second World War'. And yet, once again, farmers haven't been consulted on this. Targets have simply been drawn up by the technocrats and rubber stamped by national governments, without any consideration for their impact on farmers and their ability to produce food.

Under the EU's so-called Green Deal, every EU member state has to reach Net Zero carbon emissions by 2050. And the EU's emissions rules for agriculture are especially, insanely, stringent. The punishing green policies don't stop there, either. The [Farm to Fork strategy](#), announced in 2020, calls for 10 per cent of farmland to be set aside for non-agricultural use. It says that at least a quarter of EU farms should become organic. It says fertiliser use must fall by 20 per cent. Pesticide use must be cut by 50 per cent. And all of this should be done by 2030. Each of these demands would be enough to put thousands of farms out of business on their own. When combined, they pose an existential threat to European agriculture. And if the EU's laws weren't bad enough, member states are actually gold plating these regulations. The EU had already demanded the impossible of farmers. Now national elites in Berlin, Paris and The Hague want to go even further.

This is why farmers are out on the streets across the continent. It's why they're taking matters into their own hands. It's why they feel they have no choice but to block roads with their tractors, bring life to a standstill and douse public buildings with manure. They are determined to remind the powers-that-be just how essential they are to the

functioning of modern life.

At first, the elites tried to dismiss the protests. They resorted to their usual playbook. They called the farmers fascists, far right and pawns of online disinformation. But this propaganda campaign has flopped. Not only have these smears failed to demoralise the farmers, they have also failed to turn the public against the protests. In country after country, European peoples are backing their farmers, even as the protests disrupt daily life.

In the Netherlands, where our story began, a farmers' party briefly managed to storm electoral politics, too. The Farmer-Citizen Movement – or BBB – was set up in 2019 amid the nitrogen-crisis demonstrations. Less than four years later, [the BBB swept the board in the Dutch provincial elections](#). It won the popular vote in all 12 provinces – the first time any party had achieved this in Dutch history. While the farmers' protests managed to bring tens of thousands on to the streets, the farmers' party managed to mobilise almost 1.5million voters.

The fury of the farmers has now become impossible to ignore. The usually tin-eared elites across Europe have been forced to listen and respond. In Germany, farmers have got their government to delay planned cuts in subsidies for agricultural fuel. And they have managed to keep their tax breaks on tractors and farm vehicles, which were also under threat. In France, farmers have extracted millions of euros in additional grants. And they've put paid to government plans to hike fuel taxes. In [Ireland](#), a deranged government proposal to cull 200,000 cows has quietly been shelved. Even at the EU level, farmers have already chalked up some significant victories. Remember that plan to halve the use of pesticides by 2030? It's now been [torn up](#).

But the protests aren't going to stop anytime soon. How could they? These concessions, though welcome, do not go nearly far

enough. The green agenda is diametrically opposed to the interests of agriculture. So long as European politicians are committed to Net Zero, then the farmers will always be in their sights. What's more, the farmers' cause will continue to resonate with ordinary people, who are also served poorly by their environmentalist leaders, whose policies are pushing up prices and obliterating food and energy security. The farmers are merely the canaries in the coalmine. They were just the first group of people to be pushed to breaking point – and to get organised in response.

The farmers offer a cautionary tale to Europe's rulers. The green elites assumed that farmers would take their bitter medicine. They had no idea just how devastating their regulations would be to farmers' way of life. They failed to see the human beings behind the emissions figures on their spreadsheets. And [the broader push for Net Zero](#) could soon generate much more resistance, from a much broader section of society. After all, under the current plans, our energy bills are set to soar, as we replace reliable fossil fuels with unreliable renewables. Our trusty gas boilers could soon be ripped out, replaced with expensive and inefficient heat pumps. Older, cheaper vehicles are being banned or taxed off the road in the push towards electric cars. Yet again, the establishment seems to think it can change our way of life and shred our living standards without a peep of discontent. This is bound to provoke an almighty backlash. And the farmers have shown us the way.

Long may the farmers' revolt continue. And here's hoping it inspires many more people to take a stand.

[Connect with Spiked](#)

[Connect with Technocracy News & Trends](#)

Cover image credit: [European Commission \(Christophe Licoppe\)](#)

The Psychological Battle for Truth – and the Power of the Farmers' Uprising

[The Psychological Battle for Truth – and the Power of the Farmers' Uprising](#)

by [Julian Rose](#)

sourced from [Activist Post](#)

April 1, 2024

The 'deep state' has no power over you. None. It can only try and make you believe it does.

And in this it is very clever, using sophisticated psychological techniques that give the impression of holding the dominant position and exercising the dominant power.

But this is a chimera; and immediately one sees it as such one manifests the authoritative position and the deep state is in check; it can only operate defensively.

This it does by putting up ever greater barriers to freedom of expression, movement and choice.

It knows it's on the losing side, so has to pull all the tricks in the trade to make itself appear to be in control. It's a psychological battlefield.

Edward Bernays, the founder of modern advertising, has had much to do with weaponising the powers of perception and deception. He found that you can get people to believe and do almost anything once you learn how to exploit their psyche with carefully chosen imagery and words.

Once you tap into people's widespread subconscious attraction to the trappings of seductive consumables.

The deep state's corporate/banker led 'seeming' global dominance draws on Bernays's cunning, using advanced insights concerning how to influence the functions of different areas of the human brain.

The objective is to come up with a blanket like web of virtual signposting pointing to the direction life must go in in order to overcome some purposefully manufactured crisis. A crisis that is claimed will otherwise cook, starve or destroy people and the planet.

People in a state of funk take all this to be real, of course, and plod on with their tunnel vision acceptance of the pathological diktats of the status quo.

The deep state cabal has a mental hold over their perception of what is and is not true, and rolls out the moderators, fact checkers and 'sudden silencers' to counteract anything that emerges as an emissary of truth. Many of us have had firsthand experience of this executioner formula.

Nevertheless, 'we the purposeful people' are winning through. There is simply too much informative material on the loose for the thought/surveillance police to cover, in spite of their algorithmic interventions.

Their tactic is therefore to try to gain the upper hand by pushing harder on the 'disaster agenda.' This is exemplified by the global dissemination of the dystopian agenda laid out in Klaus Schwab's Fourth Industrial Revolution.

The most ubiquitous cooked-up disaster is, of course, 'man-made global warming' – with its stated solution to be the Transhuman. All steps in between are sold as vital to advancing the speed and efficiency of the 'human to inhuman' transformation process.

The digitalisation of life is central to the architects of control argument that humanity is incapable of managing itself and that, without their intervention, the outcome will be the complete breakdown of planetary life.

Only a race of soulless computer assisted 'super beings' can save the day, say the likes of Yuval Noah Harari, Elon Musk and Klaus Schwab.

Consider how this agenda plays on the psychology of those who have yet to find in themselves the self-assurance to discard that which has no practical sense of purpose and no foundation in basic common sense.

The architects of control count on the majority remaining unresistant to the rolling out of their high-tech hegemonic master plan. So much so that they can freely announce that by following it "You will own nothing and you will be happy."

In the psychological battle for truth, the perpetrators of the lie have access to a vast storehouse of mind-bending persuasion techniques to make their agenda seem the only choice.

They recognise that when a high percentage of individuals believe themselves to be unable to operate without a mobile phone – they will be sufficiently unfocussed and distracted so as to be unable to rebel against a fateful acceptance of slavery to the big brother of convenience.

Easily manipulated victims of digital mass hypnosis.

Here lies the rub: if the upwardly mobile urban 'educated'

segment of society sees no problem conducting their lives within a credit card bubble of hypermarket convenience shopping, digital EMF communication systems, computer fed entertainment packages and a well-paid job in a global or trans national corporation – where is the resistance going to come from?

If this genre of people is already too far gone to register an internal kick when faced by a high-level plan to 'happily' have all their material assets taken away from them – then who or what is going to raise the alarm?

It looks to me as though only a small percentage of mankind can read the script being outlined for their future behind bars. Only a few can grasp the psychology of the insentient psychopath and his soulless urge to possess and control, at any price.

But once one moves outside the world of Godless urban shopping obsessed nine to fivers and 'well-educated' university trained job hunters, a potential to get real starts to emerge.

Amongst those working people who regularly get their hands dirty, who till the fields; build shelters; repair cars; mend pipes; fix electrics and dig drains, the virtual reality digital cybernetic future of the Fourth Industrial Revolution – and Green New Deal – looks like pure fantasy. The ravings of the unhinged.

They don't need to mentally struggle in order to try to grasp the twisted logic being broadcast by the global media mafia. They simply know in their gut that it's so much 'bull'.

It is those who form the foundation of pyramid who hold society together. Who glue together the basic infrastructure which supports our daily lives. And it is from here that an increasing percentage reject the psychology of mental indoctrination and the promotion of a digitalised virtual future.

The 'Throw out Green Deal' remarkable, unified farmer uprisings happening in all parts of Europe and beyond are testimony to this. They are rising up against the imposition of phony 'Net Zero by 2045' rules that demand an end to farmers working the land and an end to the livestock that keep that land fertile.

These farmers are out in their tens of thousands. In Poland they are mounting month long tractor blockades of cities, supermarkets and border crossings. Coals miners, faced by being shut out by large scale 'stop global warming' redundancies, are joining the uprising.

Farmers say they will not cease their disruptions until their demands are met by government and by the EU.

This is the refreshingly undiluted language of genuine defiance.

It has the authorities rattled. Green Deal is, after all, the very backbone of the agenda to enslave us all to a Brave New World of synthetic everything – from food to nature to people.

The general public are in sympathy with the farmers' actions. Approximately 80% of European citizens are on their side according to opinion surveys.

Getting a solid core of consumers to rise up and participate in this bottom-up movement for the survival of real food and real farming will be vital to maintaining the momentum.

Coming from an unlikely place, a solid earthed uprising is gathering pace. The farmers' demands are essentially for economic fairness, respect and recognition of the vital roll they play in the food security of the nation.

Under 'Green Deal' none of these demands are taken seriously. The WEF solution is not to support the agricultural community but to destroy it!

In the 2024 battle for truth, everyone should behave as resolutely as the farmers. The need is to be uncompromising in one's face to face dealings with political liars and hypocrites.

We are the trustees of Planet Earth. In order to maintain its balance and equilibrium – we have no choice other than to enter into a pactless fight against all opposing forces.

Those who have land, can grow food and draw water from the well, are the last independent individuals on the planet. They are not about to capitulate to a bunch of psychos in Brussels, London, Warsaw, Washington or Paris – and nor are we.

Everyone's life is dependent upon having access to nourishing food. Therefore, everyone's life is dependent upon the survival and future prosperity of the farmer.

Support them now in their hour of need. Their need is also your need.

They have no future – and nor do we – without a lifesaving revolution that re-establishes the priorities for what is actually important in life. Think deeply about this and then act on it without delay.

And if you're left in doubt – ask farmers who actually controls the food chain. Who is really in the driving seat when it comes to feeding the world?

Rise up, all good people. Take your destiny in both hands. Vigorously join together in forging a great victory for humanity over inhumanity.

Allowing oneself to slide into a state of abject slavery is a doctrine of the graveyard.

All those retaining some life-giving red blood corpuscles know that the road to truth accepts no compromise and can never be subverted by the orchestrated opium of mass indoctrination.

Julian Rose is an organic farmer, writer, broadcaster and international activist.

[Connect with Julian Rose](#)

Cover image credit: [European Commission \(Christophe Licoppe\)](#)

Tractors parked and road traffic at a standstill in the European Quarter in Brussels, February 1, 2024 – creative commons

Pesticide Exposure Linked to Obesity, Type 2 Diabetes, and Metabolic Disease in Seniors

[Pesticide Exposure Linked to Obesity, Type 2 Diabetes, and Metabolic Disease in Seniors](#)

by [Beyond Pesticides](#)

February 27, 2024

(*Beyond Pesticides*, February 27, 2024) Popular culture and official policy continue to ignore a blatant source of the rise in obesity: chemical exposures, including pesticides. A study, “Associations of chronic exposure to a mixture of pesticides and type 2 diabetes mellitus in a Chinese elderly population,” contributes to the now-massive trove of evidence linking pesticides to diseases and shows that by the time people reach retirement age they are suffering from a heavy burden of contamination that raises their risk of complex disease.

Since the 1960s, obesity in both adults and children has nearly tripled. More than half of U.S. adults were either obese or severely obese by 2018, according to [data](#) from the National Health and Nutrition Examination Study. The 55-year trend line is decidedly upward. More women than men are obese, and black women suffer the most, but men are racing to catch up. Between 1999 and 2018, Mexican American men shot up from the lowest percentage of obesity to nearly the highest.

Obesity is a milestone on the road to Type 2 diabetes, heart disease, high blood pressure, kidney failure, joint replacement, and more. The causes of obesity are severely misunderstood. Most people believe that discipline and willpower are what keep a person from being fat, even if they have “fat genes.” The medical opinion is “calories in, calories out” – obesity, genetic or not, can be staved off with diet and exercise. But despite decades of advice, sweat, tears, and billions of dollars spent on ineffective diet pills and menus, obesity is a global emergency. If popular attitudes and medical theories were correct, obesity would be far less common and more easily controlled. It is not. Therefore, beliefs and advice are incorrect—or at least incomplete.

The researchers from the Shanghai Municipal Center for Disease Control and Prevention identified 39 pesticides in the study population. Women had slightly higher levels and a stronger correlation between obesity, pesticide burden and type 2 diabetes than men. The most significant contributors were β -Hexachlorocyclohexane (β -BHC) and oxadiazon.

β -BHC is a byproduct of technical grade lindane production and common near lindane factories. For example, in 2005 an Italian biomonitoring program found β -BHC levels 20 times higher than the [legal limit](#) in cows' milk. The subject cows' water came from a river which had been polluted by waste from a lindane facility. Lindane is available in the U.S. only as a treatment for head lice and not for any agricultural uses. It has been listed as a Persistent Organic Pollutant under the Stockholm

Convention since 2009. The International Agency for Research on Cancer classifies it as a possible human carcinogen; it has been [linked to aplastic anemia and breast cancer and is an endocrine disruptor](#). Oxadiazon is a herbicide and likely human carcinogen used in the U.S. on golf courses, parks, athletic fields, playgrounds, cemeteries and some horticultural contexts but which is not registered for any food uses.

The β -BHC and oxadiazon associations with type 2 diabetes in the Chinese senior study are “pronounced among elderly women,” according to the authors. They are also linear, meaning that for each increment of pesticide body burden, the risk of diabetes rises a comparable amount. These data, the authors write indicate “that it is an urgent need to take practical measures to control these harmful pesticides.”

Although β -BHC and oxadiazon now have limited uses in the U.S., the study found levels in the Chinese seniors of many pesticides that are still used in the U.S. in agricultural, horticultural, residential, and other applications. These include atrazine, acetochlor, metolachlor, and permethrin, to name a few, all of which have been reported to disturb lipid functions. A 2020 [review](#) of agrochemicals affecting obesity discusses more obesogenic pesticides registered in the U.S.

A concurrent [publication](#) by most of the same authors as the 2024 Chinese pesticide study reviewed evidence for environmental obesogens’ disruption of lipid metabolism. This review notes that, “Currently, more than 50 types of chemicals with high human exposure levels have been identified as environmental obesogens that can interfere with lipid metabolism and induce obesity. Experimental studies have shown that the lipid metabolism interference effects of obesogens have multiple targets, including nuclear receptors [thyroid, steroid, vitamin D3, and retinoid receptors], transcription factors [wide number of proteins that initiate and regulate the transcription of genes], cytokines [proteins important to cell signaling], and hormones. The interfering factors of

environmental obesogen-induced obesity include transgenerational effects, susceptibility [developmental] windows, gender differences...and diet habits..."

Lipids are fat-soluble compounds that are essential for cells' structural integrity along with numerous other functions in organisms from bacteria to humans. But when fat consumption exceeds the body's need for lipids, humans make more fat cells or expand existing cells. When these storage options are full, lipids begin leaking into other tissues such as the kidneys and pancreas, contributing to a wide variety of serious diseases.

Research on environmental contributions to obesity was pioneered by Bruce Blumberg, who recounts how he discovered the effects of tributyltin (TBT) in his 2018 book with Kristin Loberg, [*The Obesogen Effect: Why We Eat Less and Exercise More but Still Struggle to Lose Weight*](#). TBT refers to a family of tin compounds used to keep marine snails off ship hulls (a use now banned), to prevent fungal growth in wood and textile production, as a stabilizer in polyvinyl chloride products, and other uses. It bioaccumulates and can take 30 years to break down. Blumberg's presentation at Beyond Pesticides' 2018 [36th National Pesticide Forum](#), is available on [YouTube](#).

Dr. Blumberg, a professor of developmental and cell biology at the University of California Irvine and a molecular biologist by training, was curious about Japanese research showing that TBT could change fish from female to male, so he looked for cellular receptors that TBT could bind to. He found that TBT did not activate sex hormone receptors as expected; instead, it activated the process that leads to fat cell development. He showed that frog embryos exposed to TBT converted their testes to fat, that mice exposed to TBT in the womb had larger fat deposits as adults, and that this predisposition affected later generations. Subsequent research into the term Blumberg coined, obesogens, has expanded knowledge of these phenomena.

One of the widely-studied culprits is the notorious organophosphate chlorpyrifos. It has a painful and ragged history of regulation by EPA, which itself has repeatedly opined that it is toxic to human health. Currently, as BP [reported](#) last November, chlorpyrifos residues are still permitted in food owing to a shoddy and biased court-ordered instruction by the Eighth Circuit Court of Appeals.

The organophosphate insecticide chlorpyrifos does its damage in varied ways. Beyond Pesticides [covered](#) a 2019 [study](#) finding that it promotes obesity development even at low doses. The study found that chlorpyrifos prevented “diet-induced thermogenesis” in brown adipose tissue at concentrations “as low as 1 part per million.” Brown fat is [considered](#) better than white fat, and it burns calories to keep the body at an even temperature in cold conditions.

An earlier [study](#) by some of the same authors of the 2024 pesticide-diabetes research showed that chlorpyrifos also contributes to obesity by causing leaky gut and inflammation; when they transferred chlorpyrifos-altered microbes to unexposed mice, those mice added fat and lost insulin sensitivity –major factors in type 2 diabetes induction.

Despite reduced usage, TBT keeps on giving – and demonstrating that even at individually low doses, and even when a chemical has been banned or restricted, it can remain in the environment and combine with other toxic chemicals to cause harm. A 2019 [study](#) showed that “Combined exposure [to TBT and the “forever chemical” perfluorooctane sulfonate (PFOS)] significantly promoted the fat accumulation in newly hatched [fish] larvae, even when the doses of TBT and PFOS were both at the levels that did not show obesogenic effect. The interactive effect of TBT and PFOS could aggravate the total obesogenic effect of their mixtures, indicating a synergistic interaction.”

There are ways to fight back against the onslaught:

- Eating organic food reduces risk of metabolic diseases including diabetes, which strongly suggests that pesticides have a direct link to diabetes. See Beyond Pesticides' 2020 blog post, "[Food For Thought: Eating Organic Reduces Risk of Type 2 Diabetes](#)." In a post last October, "[Organophosphate Pesticides and the Link to Respiratory, Metabolic, and Heart Disease](#)," we noted that "Replacing dietary exposure to food grown in chemical-intensive agriculture with organic consistently reduces pesticide levels in one's body...maintaining lower levels of conventional, synthetic pesticides is likely to reduce the risk of developing chronic diseases like type 2 diabetes. In addition to positive impacts on the human microbiome, organically grown food (i.e., milk, meat, strawberries, tomatoes, and a range of other foods) contain a much more diverse bacterial community than their chemically grown counterparts."
- Schools should switch to organic foods. See our "[Call on USDA to Provide Organic School Lunches to Fight Childhood Obesity](#)."
- See our [Pesticide-Induced Diseases: Diabetes](#) for more information.

The body of research now available also supports the very recent [admission](#) by some health professionals that obesity is not caused by poor character, laziness or lack of willpower. The review of environmental obesogens and their role in metabolic diseases cites approximately 50 studies reporting specific obesogenic effects of more than 50 chemicals. Obesity has multiple determinants, but absent willpower is not one of them. Unfortunately, the medical establishment is still focused on mechanisms, such as brain activity, that cause people to eat too much, and suggest that high-calorie food is too easily available. These are probably factors, but the message that environmental obesogens are a dire emergency has not yet been received. The prevailing concept is that too much food is the problem, when it's perhaps not the amount of food,

but the pesticide load of the food, that is an essential cause of the slow-motion global pandemic of obesity and diabetes.

All unattributed positions and opinions in this piece are those of Beyond Pesticides

Sources:

Associations of chronic exposure to a mixture of pesticides and type 2 diabetes mellitus in a Chinese elderly population. Tian Chen, Xiaohua Liu, Jianghua Zhang, Lulu Wang, Jin Su, Tao Jing, Ping XiaoChemosphere, Volume 351, March 2024, <https://www.sciencedirect.com/science/article/pii/S0045653524000870?via%3Dihub> [Open Access]

Environmental Obesogens and Their Perturbations in Lipid Metabolism. Xiaoyun Wang, Zhendong Sun, Qian S. Liu, Qunfang Zhou, and Guibin Jiang Environ. Health, February 13, 2024, <https://doi.org/10.1021/envhealth.3c00202> [Open Access]

Agrochemicals and obesity, Molecular and Cellular Endocrinology, Volume 515, 15 September 2020, Xiao-Min Ren, Yun Kuo, Bruce Blumberg, <https://www.sciencedirect.com/science/article/pii/S0303720720302264?via%3Dihub> [Open Access]

Pesticide-Induced Diseases: Diabetes. <https://www.beyondpesticides.org/resources/pesticide-induced-diseases-database/diabetes>; “a wealth of additional research on the link between toxic pesticide exposure and the development of diabetes. Replacing conventional food products with organic consistently leads to reduced levels of pesticide in one’s body.”

Food For Thought: Eating Organic Reduces Risk of Type 2 Diabetes, <https://beyondpesticides.org/dailynewsblog/2020/11/food-for-thought-eating-organic-reduces-risk-of-type-2-diabetes/>

Study Finds Recently Banned, Common Insecticide Promotes Obesity Development, and Related Illnesses, <https://beyondpesticides.org/dailynewsblog/2021/09/study-finds-recently-banned-common-u-s-insecticide-promotes-obesity-development-and-related-illnesses/>

Grandmother's Exposure to DDT Increases Granddaughters' Breast Cancer and Cardiometabolic Disorder Risk, <https://beyondpesticides.org/dailynewsblog/2021/04/grandmothers-exposure-to-banned-pesticide-ddt-increases-breast-cancer-and-cardiometabolic-disorder-risk-in-granddaughters/>

Childhood Development Hurt By Preconception Exposure to Environmental Stressors, <https://beyondpesticides.org/dailynewsblog/2015/08/childhood-development-hurt-by-preconception-exposure-to-environmental-stressors/>

<http://press.endocrine.org/doi/10.1210/en.2015-1350>

<http://www.endocrine.org/news-room/current-press-releases/parents-preconception-exposure-to-environmental-stressors-can-disrupt-early-developmental-processes>

[Connect with Beyond Pesticides](#)

Cover image credit: [hpgruesen](#)

The Future of Traditional

Farming and Healthcare in the Netherlands

[The Future of Traditional Farming and Healthcare in the Netherlands](#)

by [Carla Peeters](#), [Brownstone Institute](#)

July 9, 2023

The Netherlands has been chosen as a pilot area in the EU to be climate neutral with a transition in protein food and a transformation of healthcare into a telemedicine, data, and AI-driven connected system approach led by Public Private Partnerships. A closure of 55-70 percent of traditional farming is foreseen to be replaced by tech-driven vertical farming, gene-edited crops, edible insects, veganism, 15-minute cities and a CBDC passport covering personal health data.

Citizens will pay for the transition by increasing prices for energy, food, healthcare services, and insurance.

A U-turn of these EU-driven policies is highly needed. Health and wealth have been decreasing in the past years due to pandemic measures, inflation, and recently implemented policies. The Netherlands, famous for farming and innovations, can best win this challenge to re-establish healthcare driven by traditional farmers producing nutritious whole food that prevents famine, improves the soil and the immune system for healthy lives.

Dutch Farmers will no longer accept harmful policies

The Netherlands, a small country conveniently situated within the EU, has been economically growing by [generations](#) of farming and fishing. In July 2022 the Dutch policies on

farming led to the article [No farmers No Food No Life](#).

Large demonstrations initiated by [farmers and fishermen](#) took place in July 2022, November 2022, and March 2023 in The Hague and [Brussels](#) respectively, which received much attention worldwide. Now, half a year later an even bigger demonstration initiated by Dutch farmers took place on June 29, 2023 in The Hague. Farmers and citizens have drawn the line.

The new policies pushed forward by politicians in Rutte IV could be disastrous for farmers and humanity. This will not only affect the Netherlands. Changes in farming in the Netherlands, being the second largest export country for food, will affect many people [worldwide](#).

Last week the negotiations with farmers and agricultural society on the Agriculture Agreement IN MOVEMENT to meet the governmental goals for climate change on CO2 and Nitrogen reduction in 2040 collapsed. In the draft Agreement a [25-30 percent reduction](#) of farmers and cattle and loss of agricultural fields is foreseen in 2035.

It could even be a reduction of 55-70 percent of farmers to transform the Netherlands together with Flanders and North-Rhine Westphalia in one region '[Tristate city](#)' "a large green world city with 30 million inhabitants." This is a concept that was introduced in 2016 as a marketing strategy, established as a place brand, and initiated by the [private sector](#). The concept was found by visiting emerging markets in China. The opinion of thought leaders is that it will be a success, but there is no way of knowing this would be the case.

When the new agreement is signed farmers need to fulfill [122 measures](#); most of them will not be able to meet them. Farmers are warning that if the eighth EU Nitrogen rule will be forced for the ability to grow vegetables and fruit, it will be impossible to continue farming. This year the use of certain

crop protection spreads has become restricted in the Netherlands while other countries are allowed to use it. A 40 percent reduction in yield is expected.

The only way out for farmers seems to be to accept the offer by the government to sell their ownings for 120 percent of the value with a restriction not to be allowed to start another farm within the EU area. Many farmers still refuse the offers made. 'Even when they pay [400](#) percent of the value I won't leave, my son is going to be the next generation farmer.'

The draft agreement does not present information on effects on farmers' income and consumers' behavior. The advisory report from Wageningen University and Research (WUR) writes that they cannot advise on this topic as they [do not have](#) the information. With the reduction of cattle, farming land and a transition to regenerative farming they will be able to meet the goals on climate change. However, 30,000 jobs will be lost and €6.5 billion of [added value](#).

Remarkably, the role of [Rabobank](#) (originally derived from Boerenleenbank, a cooperative owned and run by farmers) which has been pushing investments by farmers for large-scale farming, while knowing for 30 years this strategy could harm the environment, has been kept out of the N2 debate in the Netherlands. A report published by Greenpeace explores [the role](#) of Rabobank. The minimum Rabobank (a bank for actively accelerating transitions for food, climate and finance) can do says Greenpeace is to contribute [€3.1 billion](#) in the N2 Fund.

A catastrophic power by a Culture of Climate Hysteria

Recently Rob Jetten, the Dutch minister for Climate and Energy Policy presented in parliament the net zero CO2 and nitrogen plan, which will cost [€28 billion](#) and would result in a 0.000036 degree Celsius reduction in temperature in 2050. A harmful and unrealistic plan for a problem that even does not exist.

There is no climate emergency, over 500 eminent experts wrote in 2019 in an [open letter](#) to the United Nations. A [research paper](#) by Skrabble et al, in Health Physics in 2022 concludes the increase in total CO₂ due to the use of fossil fuels was much too low to be the cause of global warming. Another group of researchers found [ice](#) around Antarctica Thwaites Doomsday was eight times thinner around 8,000 years ago.

Furthermore, the [Nobel Prize](#) winner in Physics in 2022, John F Clauser, says it is clear; there is no climate crisis. Climate crisis is based on scientific corruption, pseudo-science. Similarly, Greenpeace co-founder [Dr Patrick Moore](#) explains in his speeches 'Carbon dioxide is the currency of life and the most important building block for all life on earth. It is not responsible for global warming. The whole debate on climate change is a fabrication.'

The European Court of Auditors [stated](#) in a recent report, 'It is not clear if the suggested measures will be supportive to meet the climate goals.' Probably the EU will not be able to meet their sustainability goals to reduce CO₂ emission in 2030 by 55 percent. Unfortunately, the EU committed that they will be the first worldwide to be climate neutral. In the near future every [EU citizen](#) will have to pay for CO₂ emissions via house, car, and company.

Gripped in a culture of [climate catastrophism](#), society seems to allow to rip the work of generations of farmers and thousands of cattle being slaughtered while the real consequences are unknown and threatens us all.

What is also conveniently overlooked in the climate debate against cows is [the carbon cycle](#). CO₂ is absorbed by grass during photosynthesis. Cows eat the grass produce methane-which is released into the atmosphere and breaks down into CO₂ and H₂O. And the cycle repeats itself. Basic biological knowledge that is learned at school and everybody knows. Livestock are highly needed for fertile lands. A healthy soil,

the underpinning of cultivation throughout [history](#) is created in interaction between grazing animals and soil microbiology. Regenerative agriculture can sequester more carbon than humans are inventing.

A net zero CO2 policy in Sri Lanka has proven to be a disaster and ruined many farmers' lives. The policy resulted in complete chaos and a setback in health, environment, and economy.

In the Netherlands an increasing number of farmers a year [commit suicide](#); the exact numbers are unknown. According to a recent investigation there was a 37 percent increase in 2020. Families are crying at the kitchen table daily.

Dutch citizens will be financing the €28 billion climate plan by [extra taxes](#) on food prices for example on milk products, meat, compounds for vegetation protection, and fertilizers while inflation is high and purchases are expensive.

Also, a prepared law for [zero taxes](#) on vegetables and fruits to promote healthy foods supposed to pass for January 2024 seems to make a U-turn. According to a report from SEO Economic Research it will be [too complex](#) and too expensive and it is not sure the introduction of this law will promote health. However, keeping taxes on vegetables and fruit will generate €550-950 million in income for government.

Overlooked risks of expensive food transitions

A transition to '[Food is Medicine](#)' initiatives is a strong promotion for the necessity to eat fully plant-based (vegan), bio-engineered food, lab-grown meat, and novel foods like edible insects. Fresh whole foods from farmers will be replaced by products derived from vertical farming, food grown in laboratories, and innovative Food Hubs.

According to the many start-ups and initiatives, it is necessary to solve diminishing resources and an insecurity for

healthy nutritious and sustainable food for a fast-growing human population to 9 billion people in 2050. A future of food with low-footprint ingredients and technology that will bring a beautiful nature back into balance. A [Global Food Forum](#) of young people is accelerating the transition.

The [Netherlands](#) is leading this worldwide food transition funded by the private sector-run [FoodvalleyNL](#), the World Economic Forum and Rockefeller Foundation, the EU, and the Dutch government. The secretariat and [coordinating centre](#) for various Food Hubs in the world is based at Wageningen University and Research (WUR). In 2050 we will eat less meat, eggs and dairy products and more chickpeas, crickets and chlorella; a [movement](#) for everyone, the WUR states.

A [McKinsey report](#) 'Alternative proteins, the market share is on' states leading alternative protein resources will be plant protein, insect protein, mycoprotein and cultured meat.

It is not a surprise that the world's largest and [leading](#) insect company [Protix](#), producing protein and fats from insects for feed and food for animals and [humans](#), is based in the Netherlands.

The company was founded in 2009 by two consultants from McKinsey and attracted huge amounts of funding. Protix uses high-track control systems, artificial intelligence, genetic improvement programs, and robotics. The company received many awards, among them from the WEF. A circular frontrunner in the greenfield of insect-based foods.

In the EU in the past few years Protix, Fair Insects, and [CricketOne](#), a Vietnam-based company, gained approval for use of insects in [human consumption](#). The growing number of insects authorized in the EU for sale in food including dietary supplements will not be required to carry [special labels](#) to distinguish them from other products the [EU](#) has confirmed despite protests from MEPs.

Insect protein and fat can be found in products like paste, bread, ice creams, cakes, and more. The argument is that before insects can become a large-scale food product for humans in the Western world, insects should be turned into an appealing product. For several years start-ups in food transition products like hamburgers from cultivated crickets have been supported by the EU and government in the Netherlands.

According to the [Dutch Platform](#) De Krekerij is the most sustainable fast food on the planet. One kg of cricket meat uses 85 percent less food, 90 percent less land and 95 percent less water than one kg of beef.

Green gas emission from farming insects would be 100 times lower than those from pigs and cattle. However, a position paper of the Eurogroup for animals says insect farming is [a false solution](#) for the EU's food system. Industrial animal farming for food should be replaced rather than having insect protein as another form of industrial farming.

Although more than 2,000 edible insects caught in the forests or agricultural fields have been consumed for [thousands of years](#) all over the world, there is hardly any knowledge on consuming insects cultivated in plastic boxes in fabrics. [Impacts](#) on various aspects, governing the cultivating and production methods of insects and issues on upscaling, on health, and the environment have not been investigated in the short and long term. 'Little is known about the food chain leading edible insects from farm to plate and on [their role](#) in human and planet wellbeing says the editorial Edible Insects: From Farm to Fork.

In a report in 2022 the FAO documented possible [food safety](#) issues with edible insects. Among them are allergen cross-reactivity, biological safety hazards as bacteria, viruses, fungi as well as [chemical contaminants](#) (toxins (myco), [PFAS](#), pesticides, antibiotics, [toxic metals](#), flame

retardation, cyanogenic glycosides). Especially for [undernourished children](#) and people with a weakened immune system, eating insects might be a risk factor. The [EFSA report](#) for CricketOne is warning of a possible negative impact on both the innate and adaptive immune system.

A research paper on [edible insects versus meat](#) shows that the content of individual nutrients in both insects and meat varies significantly. Both are rich in nutrients for development and functioning of the human body. Some foods [might](#) exacerbate diet-related health problems while others may be effective in treatments. However, studies on eating insect products versus meat on health are still lacking.

Around the [myth](#) of cultured meat It remains to be seen whether the production of artificial meat will be enough to be competitive in comparison with conventional meat. It is still in its infancy. Analysis found that lab-grown meat made from cultivated stem cells could be [25 times](#) worse for the climate than beef if current production methods are scaled up because they are still highly energy-intensive.

Another threat for traditional farming in the [EU conversation](#) is the industrial lobby owning [10,000 patents](#) boosting the use of gene-edited crops (CRISPR-Cas) as a solution to climate change and biodiversity. Recent research by the EU and the Global Biodiversity Framework are likely to foster the use of CRISPR-Cas as a solution to not only climate change but also biodiversity conversion. Also WUR scientists expect the EU will change the rules this year with [smarter governance](#) for the benefits of society and environment.

The debate on gene-editing for crops instead of classical natural crossings for crops is not new and has been used by Monsanto. The use of the gene-edited seeds has been expensive for many farmers. [Biological farmers](#) are concerned that farmers will become dependent on multinationals and natural

classical solutions will no longer be effective. The balance with nature will be destroyed. Plants are interconnected with soil, animals and humans. The long-term effects of combining various gene-edited plants and foods are not known. Moreover human gene-editing is still [controversial](#) and the effects of eating the gene-edited plants and fruits on animals and humans is not known.

It is clear that when evaluating the food transition to [veganism](#), gene-edited plants, soil fertilizers converting biodiversity, increased irrigation technologies, and edible insects, the intended transition has many risks in the short and long term for humans, animals, plants, and the planet.

A 'rich' country in famine and lack of care

The Healthcare system in the Netherlands has been ranking for years as [the best](#) in Europe. In 2020 the Dutch healthcare system was ranked as the number three most [innovative](#) in the world.

Unfortunately, in a country with [17.8 million](#) people, approximately [2 million](#) people do not get the care they need, and 1.2 million people are living below poverty. Around 148,000 citizens visit a [food bank](#). Poverty is expected to rise to [5.8 percent](#).

[In 2021](#) 30.9 percent of men and 35.9 percent of women (age > 16 years) experienced one or more chronic diseases. This is expected to increase to around 7 million in 2030. During the last few years a strong increase in heart problems has taken place, and [one in ten](#) persons in the Netherlands experiences heart problems.

After three years of pandemic measures and limited care, healthcare is confronted with a population with an increasing number of elderly people, people with more [chronic diseases](#), [rising mental problems](#), increased feelings of stress, fear, and loneliness, more people [dying](#) as expected,

shortness of nurses, [increased](#) sickness leaves, low salaries, inflation, high prices for energy and food, and more people being [undernourished](#). People are [leaving](#) the healthcare system, and [37 percent](#) experience moral conflicts. Doctor visits are replaced by telemedicine or done by people with less professional education.

The number of people on [waiting lists](#) for urgent care in nursing homes is increasing and surgeries have been [postponed](#). CEO's of healthcare organisations have started to hire nurses from [Indonesia](#) and India as sufficient Dutch nurses are not available or prefer to work as an independent nurse. In 2032 a [shortness](#) of 137,000 nurses is expected. Furthermore, shortness of family doctors (35 -45 percent) is on the rise. [Telemedicine](#) and efforts on the implementation of technological support for big data and AI are pushed forward by the minister of Healthcare.

Large academic hospitals have started [AI](#) labs. Personal medical information files [will become](#) more easily available among different care organisations and within the EU. Special acute care will be concentrated in fewer hospitals.

CEO's of healthcare organizations with [nursing homes](#) and homes for the [disabled](#) have written an open letter to the minister that the current situation will drive organisations into bankruptcy. The risk for [Dutch women](#) to become burnt out or lose their paid work to replace with unpaid voluntary care is near.

Prices for mandated private health insurance [increase](#) due to inflation. During the pandemic [billions](#) have been thrown away for unsafe and ineffective and even harmful measures. But, politicians in the Netherlands don't see it as a priority to evaluate the policies as they have postponed the pandemic [inquiry](#). Trust in politics in the Netherlands is at an all-time [low](#).

Preventing Famine

It is the [UN report](#) that appeared in April 2023 that needs to be on the front page of all media worldwide. “Globally the consumption of animal source foods including, meat, eggs and milk can help to reduce stunting, wasting and overweight amongst children.”

“This is a significant gap given the co-existence of micronutrient deficiencies with overweight, obesity and Non-Communicable Disease.”

At least [one in ten](#) people and [one in three children](#) worldwide is malnourished. This is presumably much more when various grades of deficiencies are considered. While it is known that most non-communicable diseases can be prevented and restored, it is unacceptable given the co-existence with deficiencies that malnutrition and even hunger and famine may increase when EU policies will be forced into the agriculture and healthcare system in the Netherlands.

The Netherlands owes generations of hard-working farmers and fishermen a solution to the problem of famine and a restoration of lower cost of healthcare. A cooperation between farmers, fishermen, and medical doctors for good nutritious whole food and loving care will be a strategy less costly, safe, better for soil and the immune system, and more successful. This will be the way that needs to be followed to regain trust and wealth.

[Connect with Brownstone Institute](#)

Cover image credit: [3345557/pixabay](#)

Contamination of Agricultural Soils and Plants, Terrestrial and Aquatic Environments, by Graphene in Fertilizers and Pesticides of Toxic Agriculture

[Contamination of Agricultural Soils and Plants, Terrestrial and Aquatic Environments, by Graphene in Fertilizers and Pesticides of Toxic Agriculture](#)

by [Dominique Guillet](#), [Xochipelli](#)

published March 11, 2023

Summary [Topics Covered in This Article] :

- Foreword
- Nano-materials of the Graphene family are strictly unregulated by the European Commission
- How long have Graphene derivatives been contaminating Agriculture? Ten years or fifteen years?
- Graphene Hydrogels commercialized for Agriculture
- Studies on the toxicity of Graphene derivatives on plant growth and soil health

Studies on the toxicity of Graphene derivatives on all elements of aquatic environments

- **Studies on the ability of Graphene derivatives to allegedly improve plant growth**
- **Studies on the ability of Graphene derivatives to eliminate or mitigate, allegedly, toxicities or pests in agriculture**
- **A few Patents concerning the insertion of graphene oxide in Fertilizers and in Pesticides/Biocides of all kinds**

Foreword

This dossier is a follow-up to my first one, entitled ["Graphene in Agriculture"](#), which presented two of my short articles on the subject, as well as six essays written by the Spanish researcher, Mik Andersen. This first dossier was presented in January 2022.

In this present dossier, I have "restricted myself", in the first part, to the proven contamination of agricultural plants, agricultural soils, terrestrial environments and aquatic environments, by Graphene present in fertilizers and pesticides used in Agriculture. I do not address the same "contamination", by Graphene as a "decontamination vector", of these same agricultural, terrestrial and aquatic environments... which it has itself contributed to contaminate in synergy with a host of other metallic nanoparticles. This scandalous issue of the "decontamination by Graphene" will be the subject of a subsequent dossier.

The situation is much more serious than the Spike's Wacky Sectarians, and other devout dissidents of the Covidian religion, can imagine, when they censor us, inexorably, we whistleblowers who denounce the presence of graphene, nano-particles and other nano-technologies, in CoYid/19 injections

– and other injections called infantile, anti-flu, anti-cancer, anti-meningitis, “vaccines” – ad nauseam and ad mortem.

Graphene is everywhere: namely, in all sectors of daily life because it is considered the miracle material – especially by all the eugenicist Globalists and other scientists in their pay... Indeed, Graphene will allow them to trace and connect Humans by chaining and imprisoning them, “digitally”, in the nets of the virtual network under the pretext of “digital health”, “digital medicine” or “digital pharmacy” – or under no pretext at all... when dictatorship sets in.

Biologists, doctors, researchers, journalists, activists, columnists, influencers, civil servants, etc., who continue to deny this reality of the omnipresent Graphene – or to deny the extreme health risks associated with this reality of the omnipresent Graphene – are thus invited to open their eyes, their ears and their synaptic connections very quickly... or to change profession. What about plumbing?

Why? Because they are liars and because, today, the empire of lies – and its peddlers under all ideological shades – is in the process of collapsing under the weight of its own inconsistencies, manipulations, dissonances. Indeed, the empire of lies can no longer generate as much energy as it would take to fill the gaps... which are becoming more and more gaping.

In a second part, I present the studies which affirm that Graphene can increase the growth of the plants, fight against the pests or, even, take part in the decontamination of the agricultural plants toxified by the extreme abundance of heavy metals, various and varied, in the agricultural grounds.

Indeed, there are teams of highly paid “scientists” whose mission is to claim that Graphene is harmless in agricultural soils, in food plants, in terrestrial and aquatic environments

– and that it is, in fact, beneficial. These are the same people who produce “scientific” studies on the danger of the non-existent CoYid/19 or on the harmlessness of genocidal vaccines.

These are the same people who produce “scientific” studies claiming that Graphene is not dangerous for the human organism – and that it is, in fact, beneficial. In fact, I am presenting, here, summaries of hundreds of studies on the toxicity of Graphene derivatives: graphene oxide, reduced graphene oxide, carbon nanotubes, carbon quantum dots, graphene quantum dots, etc.

It is important to elucidate what a plethora of scientists have been working on, for the last 15 years or so, with regard to the very concrete problem of nano-particles in agriculture – and therefore in food. Indeed, those who finance this type of research and study are, of course, very intentional – in terms of profitability, or, in the case of “vaccines”, in terms of orchestrating planetary depopulation.

This elucidation is all the more essential since, as mentioned below, hundreds of thousands of tons of nano-materials are injected annually into agriculture, in France for example, without anyone being aware of the existence of this phenomenon – or of the nature of the nano-particulate substances injected... under the pretext of fertilizers, elicitors or pesticides.

This is why I am presenting, first of all, the very concrete and commercialized case of the graphene hydrogel, GelPonic, in order to highlight the fact that – just as insect meal has been sneaking into many foods for years – graphene has already infiltrated all sectors of agriculture... and therefore, of food.

It is no longer just a matter of patents or PhD studies... but of concrete proposals made by the industry. Moreover, patents

and other scientific studies by PhDs are often only the first signs of an industrial catastrophe.

I invite readers interested in this very toxic issue to consult my very long files on the subject of Graphene in human food through cellular food, insect-based food, functionalized meats, food packaging, etc:

[Homo chimericus: Chitinization, through an insect-based diet, in synergy with Graphenization, of food and medicines, is generating a new chimeric and connected human organism](#)

[Graphene oxide, carbon nanotubes, synthetic DNA, in the nanofibers of cell-cultured meats grown in metal tanks... and in animal meats](#)

[Graphenization of the meat, and proteins, by “vaccines” injected into the livestock](#)

[Soylent Green in 2022? Chitinization of the Human Organism by an Insectivorous diet based on the Recycling of Agro-Industrial Wastes, Plastics of all kinds, Human Excrements... and soon of Human Corpses?](#)

Graphene has infiltrated agricultural plants even more than it is beginning to contaminate all terrestrial and aquatic environments – as many of the following studies have shown. And this is, of course, without dwelling on the Graphenization of the Atmosphere, which I have already addressed in a voluminous dossier, [“Graphene in the Atmosphere”](#).

Graphene in its various forms circulates in the Atmosphere, in agricultural environments, in aquatic environments... and, therefore, in the rivers and water tables that serve agricultural soils – in a vicious circle of self-accumulation and self-assembly.

It goes without saying that the problem of contamination of terrestrial and aquatic environments by graphene present in

fertilizers, elicitors and pesticides of toxic conventional agriculture, is also posed for all other metallic or non-metallic nanoparticles that have been used in agriculture for a long time.

What should we do? We will avoid panicking, first of all, because the Globalists already handle panic with brio.

Let us be confident that in the long run – whatever the amplitude – Gaia, our Mother Earth, digests and metabolizes any substance and, one day, she will emanate, from her Biosphere, a bacterium with the capacity to digest all the two-dimensional carbonaceous nano-materials (0.35 nm thick) of the Graphene family... if they excessively disturb Her Natural ways.

Nano-materials of the Graphene family are strictly unregulated by the European Commission

Here is how the European Commission (the tool of the European dictatorship in the service of the military-industrial complex) presents the regulations on nano-materials in three pages – the third of which is extremely clear as to the strict preponderance of derivatives of the Graphene family in the general nomenclature of this class of materials. [\[91\]](#) These regulations are, intrinsically, non-regulations.

It goes without saying that all nano-materials are strictly unregulated by the European Commission – not just graphene derivatives.

«Nanomaterials in REACH and CLP. On 3 December 2018 the Commission adopted [Commission Regulation \(EU\) 2018/1881](#) to modify REACH Annexes I, III and VI-XII, introducing nano-specific clarifications and new provisions in the chemical safety assessment (Annex I), registration information requirements (Annex III and VI-XI) and downstream user obligations (Annex XII).

... On the basis of the Commission Recommendation of 18 October

2011 on the a nanoform is a form of a natural or manufactured substance containing particles, in an unbound state or as an aggregate or as an agglomerate and where, for 50 % or more of the particles in the number size distribution, one or more external dimensions is in the size range 1 nm-100 nm, including also by derogation fullerenes, graphene flakes and single wall carbon nanotubes with one or more external dimensions below 1 nm.» [\[86\]](#)

Reading this regulation 2018/1881, it is obvious that the European Commission authorizes, blindly, the totality of the nano-particles produced by the Industry because if one refers to its requests of non-toxicity – with regard to humans, invertebrates, algae, etc – it is a long time since a formal, and generalized, prohibition should have been promulgated in order to protect the health of the populations and the eco-systems.

Indeed, only for some graphene derivatives, I have presented about 300 studies proving their extreme toxicity. And these are, for the most part, studies dating from recent years ... while the first studies, of toxicity, date from about 2011 – ie, the time of the « recommendation » of the European Commission of October 18, 2011 on the “nano-form” ... [\[87\]](#)

How could Graphene be regulated, in terms of its toxicity, when billions of euros of public money are being transferred to all the pseudopods under the aegis of the Graphene Flagship – which, of course, all affirm, with their mouths agape, that Graphene is the miracle material – and so harmless!

How could Graphene be regulated, in terms of its toxicity, when the Globalists are drooling with excitement over the concept of “15 minute cities” promoted by the demented and eugenicist gang of the World Economic Forum?

How could Graphene be regulated, in terms of its toxicity, while the Globalists are drooling with excitement over the

concept of “Graphene cities”, the integral Graphene cities? Why? Because graphene is the inescapable, fundamental foundation of the “15-minute cities” so dear to Klaus Schwab. *Graphene is the fundamental vector, present and future, of the Connection, in all its virtual and false aspects. All those who are not able to apprehend, organically, this Reality are, probably, already disconnected from it.*

According to the review titled “Hazard characterization of graphene nanomaterials in the frame of their food risk assessment: A review”, and published, in June 2022, in Food and Chemical Toxicology. [\[93\]](#)

«The obtained results showed that the investigations performed up to now did not follow internationally agreed-upon test guidelines. Moreover, GFNs seemed to resist gastrointestinal digestion and were able to be absorbed, distributed, and excreted, inducing toxic effects at different levels, including genotoxicity. Also, dose has an important role as it has been reported that low doses are more toxic than high doses because GFNs tend to aggregate in the digestive system, changing the internal exposure scenario. Thus, further studies including a thorough toxicological evaluation are required to protect consumer’s safety. »

How long have Graphene derivatives been contaminating Agriculture? Ten years or fifteen years?

If we refer to the article, from 2015, presented by Inf’OGM, and entitled « Des nanos en agriculture? », [\[58\]](#) here is what Danielle Lanquetuit and Mathilde Detcheverry of the association AVICENN – whose objective is to promote public debate and the transparency of political leaders on the issue of nanotechnologies – state.

«Thanks to the mandatory declaration instituted by France in order to feed a register (R-Nano) of nano-materials on our territory, created in 2013, we know that nearly 416 000 tons of nano-substances were declared as having been produced or

imported in 2014 in France. But this figure is far below the overall volume of nano-materials actually introduced on our territory and which escape the radar of the authorities. For the past two years, agriculture has topped the list of declared sectors, without any indication of either the volume of nano-materials actually used in this sector, or the number of agricultural declarants...

Farmers are unknowingly exposed to the nano-materials in the mixtures they handle and spray... In 2014, we were able to identify at least seven companies that market products for crops that have filled out declarations in R-Nano, with about forty products sold in agriculture... without being able to have more information: the companies indeed do not provide any information on the nano-materials they use, neither in the safety data sheets, nor on their sites nor on the site of the Union of Plant Protection Industries (UIPP).»

The underlining is mine to emphasize that this is a ten year old agricultural issue. What is the nature of these nanoparticles in fertilizers, elicitors and pesticides/biocides in conventional agriculture? Few people know the composition of these nanoparticles because it requires going back upstream... to the trade secrets of the Pharma Industry – which controls the Agro-Chemical Industry.

What we can be sure of is that graphene is everywhere in agriculture because, firstly, its various derivatives have been known for about twenty years; secondly, it is considered to be the miracle material that will revolutionize everything; and, thirdly, for the last few years, it can be produced by the ton – from any carbonaceous bio-mass – at a very minimal cost.

Here is how the organization, called Graphene Council, presents, in May 2022, the new generation of nanoparticle pesticides as conceived by the US EPA, Environmental Protection Agency :

«To meet this need, an EPA research team led by Dr. Su conducted an exhaustive search for patents and published literature related to **nanopesticides** to understand the state-of-the-science. **The team found and analyzed over 36,000 patents and 500 peer-reviewed journal articles.** From their research findings, the team established two general categories of nanopesticides to help inform EPA's regulatory reviews: 1) products with mostly metal-based nanomaterials as the active ingredient, like nanosilver and nanocopper oxide/hydroxide, and 2) **products that encapsulate and carry the active ingredient using nanomaterials (mostly carbon based) like graphene and carbon nanotubes.**

The team found that nano-enabled pesticides adhere better to plant surfaces and have a reduced impact on non-target organisms. Nanopesticides may also enhance plant resilience against stressors from heat or drought. These benefits could lead to higher crop yield and provide more agricultural resilience to address climate change and weather extremes. The team's findings also highlight the data gaps and the need for additional research on potential adverse impacts of nanopesticides.» [\[59\]](#)

It is thus very clear to the US governmental environmental protection agency that there are two classes of nano-particulate materials, called « nano-pesticides » in agriculture: on the one hand, active ingredients based on metallic nano-particles and, on the other hand, conventional pesticide carriers, which are all of the Graphene family.

Here, now, is how the platform, named AzoNano, presents, in April 2022, the next generation of graphene-based nanoparticle fertilizers and pesticides: [\[60\]](#)

«In agriculture, carbon-based nanomaterials attempt to decrease the number of pesticides distributed, minimize nutrient leaching in fertilization, and increase pest and disease control output.

Carbon nanomaterials (CNMs) can be used as excellent fertilizer carriers due to their stable molecular arrangement, uniform dispersion, and low toxicity in application media. For example, graphene oxide nanoparticles are effective trace element transporters.

Carbon nanomaterials (CNMs) are utilized as light converters for supplementing plant photosynthesis. Through chloroplast photosynthesis, plants transform solar energy into chemical energy.

The sunlight used by chloroplasts is primarily confined in the blue and red regions of the visible spectrum. Therefore, they can be used as light conversion materials to maximize solar energy for expanding the light spectrum for plant photosynthesis. That said, to use carbon nanomaterials (CNMs) as light converters in plants, some important factors such as light conversion efficiency, biocompatibility, and cytotoxicity of light converting carbon nanomaterials (CNMs) in plants, and heat produced during carbon nanomaterials-enabled light transformation in plants must be taken into account.

Recently, Zhu et al. revealed that carbon-based nanomaterials with antifungal characteristics could be used to generate new fungicides. Among the different carbon nanomaterials (CNMs) tested against two plant pathogenic fungi, including nanotubes, fullerenes, and graphene oxide, the single-walled carbon nanotubes (SWCNTs) had the strongest antifungal action.

The use of carbon nanomaterials (CNMs) in applying biosensors, light convertors, fertilizers, pesticides, and agrochemical delivery is notable. However, their impact may change depending on plant species, carbon nanomaterial (CNM) type, and its dosages.

In agricultural applications, carbon-based nanomaterials can make the following contributions:

Increased agricultural yield with the use of plant growth boosters and innovative nanomaterial-based fertilizers.

Plant protection products based on nanomaterials, such as insecticides and herbicides.

The use of nano-encapsulated plant protection agents and slow-release fertilizers to reduce the number of agrochemicals used.

Nanotechnologies for agricultural practice optimization via precision farming. [\[60\]](#)

Graphene Hydrogels commercialized for Agriculture

In England, researchers at the University of Manchester are working on a new concept, called “Graphene City”, which aims to graphenize all supply chains – and, in fact, all sectors of daily life.

May I repeat that all sectors of daily life, that means: “vaccines”, injections, drugs, aerosols, cosmetics, dressings, condoms, sanitary napkins, therapeutic women’s panties, anesthetics, dental implants, eye lenses, concrete, asphalt, window frames, water treatment membranes, ventilation system filters, fertilizers, agricultural pesticides/biocides, bio-testing shoes, bio-testing clothing, clothing insulation, face masks, wall paints, batteries, electronics, wind turbines, pain relief patches, night covers, mattresses, light bulbs, headphones, ski goggles, etc., etc?

One of their research objectives is to graphenize agriculture. They are, thus, developing an agricultural alternative they have named “GelPonic” in order to, allegedly, reduce energy and space wastage by promoting vertical agriculture. “GelPonic” is a graphene hydrogel that has the ability to “sense” the nutritional needs of plants in the soil and meet them.

This graphene hydrogel is available in the form of granules,

plates or blocks. [\[1\]](#)

This research, funded by the UK government and Europe, is under the responsibility of Dr. Beenish Siddique, the founder, and CEO, of AEH Innovative Hydrogel – which is located in the Graphene Engineering Innovation Centre in Manchester. [\[77\]](#)

Their official propaganda is well-smoothed and uses all the key concepts to fool the dumb and the sleepy: “sustainability”, “recycling”, “resilience”, “carbon sequestration”, “water saving”, “corporate social responsibility”, “zero carbon emissions”, etc.

AEH Innovative Hydrogel’s graphene hydrogel is also used for medical applications – in particular to treat chronic wounds, to avoid infections and amputations. [\[78\]](#)

“Connected bandages” are also manufactured by Grapheal in Grenoble, in France – a graphenizing company that also offers a “digital” CoYid/19 saliva test. Grapheal announces itself as “designer and manufacturer of embedded digital biosensors for field medical diagnosis and remote patient monitoring”. [\[902\]](#) [\[903\]](#) The connected bandage is presented as follows: «This smart and connected graphene-based bandage is extremely flexible and adapts easily to all parts of the body. Its tiny wireless electronics with very light and highly flexible electrodes transmit data to a mobile application. Using tele-medicine software and medical technologies in the cloud, the hospital receives the information, which can then be monitored and evaluated by a specialist.»

One study, published in July 2021, even proposes an aerogel composed of graphene oxide and polyethylene glycol reinforced with grape seed extract (for its proanthocyanidins) to heal wounds. [\[1069\]](#)

On the other side of the Atlantic, in California, Juan Pablo Giraldo – from the University of California Riverside – is leading a \$1.6 million funded project on the use of

nanotechnology to deliver nitrogen, as a fertilizer, directly into chloroplasts.

UC San Diego, to use nanotechnology, chemized by her team, to deliver genetic material into chloroplasts. According to Nicole Steinmetz, *«Our idea is to refunctionalize natural nanoparticles, namely plant viruses, in order to deliver genes into a plant... Some engineering is needed to make sure that the nanoparticles access the chloroplasts and also that they cannot infect the plants.»* Their goal is, thus, to have these lettuces and spinach, chimerized in vaccine mRNA, grown by gardeners themselves – or by large-scale market gardeners for city populations.

These researchers specify, with their hand on their heart, that all their researches are oriented towards “ecology” – that is to say the same ecology promoted by Klaus Schwab, the Transhumanist Reinitiator. It is a question of optimizing the delivery of nitrogen to the heart of the cells of cultivated plants in order to avoid its waste – real, namely the direct infiltration, of half of this nitrogen of synthesis, in the water tables.

The question that one must ask oneself, when dealing with these mentally disturbed people: what is the nature of this “engineering”, of chimerization, that must be applied in order for the nanoparticles to reach the chloroplasts. In short, what is the process by which the “refunctionalization” of phytoviruses – that is, of plant-infecting viruses – is carried out?

According to the presentation of a Korean patent, from 2019, on the increase of plant growth by incorporation of graphene nano-particles: « It has been shown that carbon nanotubes, in monofoil, can be transported and deposited, in the lipid bilayer of chloroplasts, through kinetic trapping that promotes photosynthetic activity and electron transfer.» [\[929\]](#)

The other question we have to ask ourselves: **could it be a “refunctionalization” with graphene oxide, carbon quantum dots or carbon nanotubes?** Would these graphene nanoparticles be used for conveying purposes... in order to access the chloroplasts?

It is very likely that the answer will be of the same type as for the Quantum/19 injections of the Pharmacratic Mafia. The mRNA is wrapped in lipid nanoparticles and nothing more, I promise... And how do we explain, then, the magnetization of some injected?

Thus, as early as spring 2018, the University of Adelaide, Australia, made headlines in the Industrial Fertilization sector by announcing the effectiveness of “eco-friendly” industrial fertilizers, respectful of the environment, because they are vectorized by graphene oxide. [\[934\]](#) [\[935\]](#)

Today, as mentioned above, it is not easy to determine who is marketing nano-fertilizers or nano-pesticides. On the other hand, it is very easy to determine which companies commercially distribute graphene, carbon nano-tubes, fullerenes, carbon nano-cones, carbon nano-pulp, etc., etc. Examples are INSCX [\[76\]](#), NanoIntegris [\[77\]](#), OCSiAl [\[78\]](#), Tuball [\[79\]](#), MKNano [\[84\]](#), Matexcel [\[83\]](#), Platonic Nanotech [\[82\]](#), NanoAmor [\[81\]](#), etc.

The Nanowerk platform presents 53 industrial companies, worldwide, commercializing a plethora of nano-products of the Graphene family. [\[80\]](#)

Studies on the toxicity of Graphene derivatives on plant growth and soil health

“Distribution of different surface modified carbon dots in pumpkin seedlings”. 2018. [\[16\]](#) At the biochemical level, the elevated antioxidant enzymes in pumpkin roots suggest that all the CDs could potentially trigger the antioxidant defense systems in pumpkin seedlings. Additionally, such alteration

was greater in the roots than in the shoots. Our study represents a new perspective on CD visualization in plant tissues and provide useful information for the potential toxicity of different types of CDs to terrestrial plants, which is of importance to agricultural application.

“Graphene oxide enters the rice roots and disturbs the endophytic bacterial communities”. [\[55\]](#)

“Identifying the Phytotoxicity and Defense Mechanisms Associated with Graphene-Based Nanomaterials by Integrating Multiomics and Regular Analysis”. 2021. [\[20\]](#)

The results showed that the plant defense was regulated by reducing the calcium content by 21.7-48.3%, intercellular CO₂ concentration by 12.0-35.2%, transpiration rate by 8.7-40.2%, and stomatal conductance by 16.9-50.5%....The phytohormone gibberellin and abscisic acid receptor PYL8 were upregulated, indicating the activation of defense systems. However, reduced graphene oxide and graphene oxide quantum dots trigger stronger oxidative stress (e.g., H₂O₂ and malondialdehyde) than graphene oxide in fruits due to the breakdown of antioxidant defense systems (e.g., cytochrome P450 86A22 and P450 77A1).

“Stress Response and Nutrient Homeostasis in Lettuce (Lactuca sativa) Exposed to Graphene Quantum Dots Are Modulated by Particle Surface Functionalization”. 2021. [\[2\]](#)

C-GQDs and O-GQDs cause oxidative damage, disruption of mineral and organic nutrients homeostasis, impairment of photosynthesis, and modulates the levels of phytohormones. Light-triggered reactive oxygen species generation and oxidation of antioxidants in plants are the critical reason for the phytotoxicity and explain the difference between the different functionalizations. These findings suggest that GQDs may not be as safe as expected. Future studies should consider the modulation of surface chemistry to achieve optimal safety

of GQDs, and more plant species should be tested over a longer-term scale.

“Surface charge affects foliar uptake, transport and physiological effects of functionalized graphene quantum dots in plants” 2021. [\[21\]](#)

Overall, our findings provide direct evidence for the influence of surface charge on foliar uptake, translocation, and physiological effects of GQDs in crop plants, and imply that foliar exposure of GQDs negatively impact plant photosynthesis and growth health.

“A double-edged effect of manganese-doped graphene quantum dots on salt-stressed Capsicum annuum”. 2022. [\[24\]](#)

However, based on a comprehensive analysis of normal alkanes (n-alkane) using gas chromatography-mass spectrometry (GC-MS), we also observed that the leaf epicuticular wax profile was disturbed by GQD-Mn, as the concentration of long-chain n-alkanes was increased. Meanwhile, the content of magnesium (Mg) and zinc (Zn) indicated a potential promoted photosynthesis activity in C. annuum leaves.

“Sustainable agronomic response of carbon quantum dots on Allium sativum: Translocation, physiological responses and alternations in chromosomal aberrations”. 2022. [\[25\]](#) This study deals with the evaluation of the uptake, translocation and phytotoxicity of graphene quantum dots, blue luminescence emitters, on the Allium sativum plant. The evaluation of the genotoxicity and cytotoxicity of CQDs towards the roots of Allium sativum was estimated according to three different concentrations.

“Sunlight promoted self-fenton photodegradation and pathway of doxycycline: Interactive effects of nanomaterial on bean plant and its genotoxicity against Allium cepa”. 2023. [\[26\]](#)

“Synergistic effects of glyphosate and multiwall carbon

nanotubes on *Arabidopsis thaliana* physiology and metabolism". 2021. [\[27\]](#)

The synergistic effect observed was attributed to the accumulation of glyphosate resulting from permeability and transportability of the carbon nanotubes. Overall, the risk of nanotube-herbicide interaction suggests a caution use of nanotubes in agricultural applications.

"New insight into the mechanism of graphene oxide-enhanced phytotoxicity of arsenic species". 2021. This study deals with the joint phytotoxicity of graphene oxide and arsenic species (arsenite, arsenate) on monocotyledonous (*Triticum aestivum*) and dicotyledonous (*Solanum lycopersicum*) plant species. [\[30\]](#)

In addition, co-exposure with GO resulted in more severe oxidative stress than single As exposure, which could subsequently induce damage in root plasma membranes and compromise key arsenic detoxification pathways such as complexation with glutathione and efflux. Co-exposure to GO and As also led to more significant reduction in macro- and micronutrient content.

"Effects of three graphene-based materials on the growth and photosynthesis of *Brassica napus*". 2022. [\[31\]](#)

The results revealed that RGO impaired photosynthesis mainly by decreasing the chlorophyll content and Rubisco activity. A further gene-level analysis suggested that this effect of RGO might be due to its toxicity on sulfate transmembrane transporter and nitrogen metabolism, which ultimately led to nutrient imbalance. However, GO directly damaged the photosystem by disrupting the chloroplast structure, and a decrease in Rubisco activity indicated that GO also inhibits carbon fixation. Further gene-level analysis demonstrated that GO has toxicity on the chloroplast membrane, photosystem, photosynthethic electron transport and F-type ATPase.

"Is airborne graphene oxide a possible hazard for the sexual

reproduction of wind-pollinated plants?" 2022. [\[35\]](#)

"Assessment of graphene oxide toxicity on the growth and nutrient levels of white clover (*Trifolium repens*"). 2022. [\[39\]](#)

In this study, white clover (Trifolium repens L.) was grown in a potted soil with graphene oxide (GO) at levels of 0.2%, 0.4% and 0.6% and the effects of GO on the growth and nutrient uptake of white clover were evaluated after 50 and 100 days of exposure. GO exposure showed adverse effects on seedling growth, photosynthetic parameters and nutrient uptake in shoots, and the effect was more significant with increasing concentration and exposure time. Compared with the control, GO at the highest level of 0.6% decreased plant height, leaf and stem dry weights, total chlorophyll content and net photosynthetic rate by 43.7%, 45.7%, 43.4%, 32% and 85.7%, respectively, after 100 d of exposure, and N, K, Cu, Zn, Fe, Mo, B, Si contents decreased by 19.5%, 20.1%, 12.6%, 25.0%, 12.9%, 26.0%, 18.9%, 23.0%, respectively. Furthermore, the electrolyte leakage, lipid peroxidation, reactive oxygen species, antioxidant enzyme activities were all increased by GO, especially at high dose and long exposure. These results indicate that GO can suppress plant growth by oxidative stress, photosynthesis inhibition, and nutrient imbalance.

"Graphene oxide affected root growth, anatomy, and nutrient uptake in alfalfa". 2022. Cette étude porte sur l'impact négatif de l'oxyde de graphène sur la croissance et le développement des racines de luzerne. [\[10\]](#)

Our findings indicate that GO at high levels has a negative impact on root growth and development by inducing oxidative stress, structural impairment, and nutritional imbalance. Careful soil GO management should be emphasized.

"Effect of graphene oxide on the uptake, translocation and toxicity of metal mixture to *Lepidium sativum* plants:

Mitigation of metal phytotoxicity due to nanosorption". 2022. [\[9\]](#)

"Combined effects of carbon nanotubes and cadmium on the photosynthetic capacity and antioxidant response of wheat seedlings". 2021. [\[7\]](#)

Compared with Cd alone, CNTs combined with Cd decreased net photosynthetic rate, stomatal conductance, transpiration rate, primary maximum photochemical efficiency of photosystem II, actual quantum yield, photosynthetic electron transport rate, root canal protein, and ribulose-1,5-bisphosphate carboxylase/oxygenase content. Moreover, combined treatments increased the content of superoxide anion, superoxide dismutase, guaiacol peroxidase, cytochrome, and malondialdehyde in wheat seedlings. Moreover, membrane lipid peroxidation was aggravated, causing serious damage to the wheat membrane system. In addition, the toxicity of the SW treatment and the combined treatment with SW and Cd was higher than that of the MW treatment.

"Synthesis and characterization of single-walled carbon nanotube: Cyto-genotoxicity in *Allium cepa* root tips and molecular docking studies". [\[3\]](#)

*As a result, cytotoxic and genotoxic effects of SWCNTs in *A. cepa* root meristematic cells which is a reliable system for assessment of nanoparticle toxicology were demonstrated in this study.*

"Effects of multi-walled carbon nanotubes in soil on earthworm growth and reproduction, enzymatic activities, and metabolomics". 2022. [\[15\]](#)

Exposure to 50 mg/kg MWCNTs significantly increased activities of CYP2C9, CYP3A4, SOD, CAT, and GST but clearly reduced levels of L-aspartate, L-asparagine, and glutamine. With exposure to 100 mg/kg MWCNTs, toxic effects on earthworms were observed, with significant inhibition in activities of CYP

isoenzymes and SOD, significant reductions in L-aspartate, L-asparagine, glutamine, and tryptophan, and simultaneous accumulations of citrate, isocitrate, fumarate, 2-oxoglutarate, pyruvate, D-galactose, carbamoyl phosphate, formyl anthranilate, hypoxanthine, and xanthine. Results suggest that toxicity of MWCNTs to earthworms is associated with reduced detoxification capacity, excessive oxidative stress, and disturbance of multiple metabolic pathways, including amino acids metabolism, the tricarboxylic acid cycle, pyruvate metabolism, D-galactose metabolism, and purine metabolism. The study provides new insights to better understand and predict the toxicity of MWCNTs in soil.

“Interactive effects of metals and carbon nanotubes in a microcosm agrosystem”. 2022. [\[43\]](#)

“Effects of microplastics and carbon nanotubes on soil geochemical properties and bacterial communities”. 2022. [\[46\]](#)

Our findings show that conventional and biodegradable MPs differently change soil geochemical properties and microbial community structure and functions, which can be further modified by co-existing MWCNTs.

“Nanomaterials in agricultural production: benefits and possible threats?”. 2013. This review covers the most recent literature on the application of nanotechnology to agriculture, including nano-fertilizers, nano-sensors, crop protection, pollution control, waste management, and pesticide detection. The negative effects of nanoparticles on edible plants are also discussed. [\[82\]](#)

“Induction of programmed cell death in Arabidopsis and rice by single-wall carbon nanotubes”. 2010. This study investigated the exposure of Arabidopsis and rice leaf protoplasts to single-walled carbon nanotubes and examined cell viability, DNA damage, reactive oxygen species generation and associated gene expression. [\[86\]](#)

Consequently, SWCNTs have an adverse effect on protoplasts and leaves through oxidative stress, leading to a certain amount of programmed cell death. Although nanomaterials have great advantages in many respects, the benefits and side effects still need to be assessed carefully.

*“Effects of graphene on morphology, microstructure and transcriptomic profiling of *Pinus tabulaeformis* roots”. 2021. This study focuses on increasing the growth of Chinese Red Pine (*Pinus tabulaeformis*) by adding graphene oxide nanoparticles to the irrigation water – at 25 mg per liter. [\[1610\]](#)*

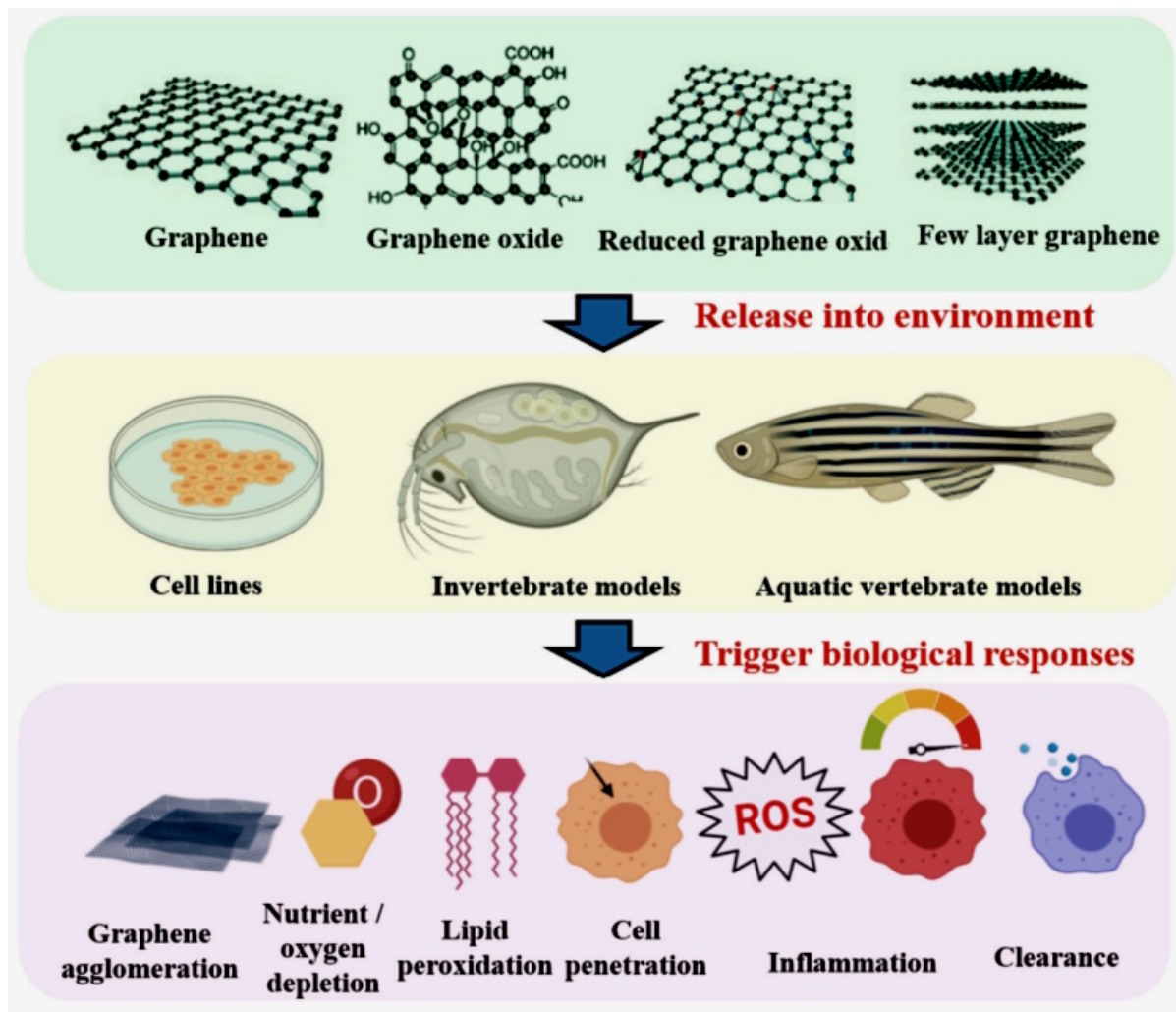
Notwithstanding these positive effects, it is reported that graphene may be detrimental to plants under certain conditions. The sharp edges of graphene may physically cut cell membranes and compromise their integrity [\[18\]](#). In addition to increasing the uptake of water and fertilizer by roots, graphene also increased the uptake of heavy metals such as cadmium and arsenic, which increased their toxic effects [\[19, 20\]](#). Furthermore, graphene treatment may lead to the alteration of pH, metabolic processes, induce different degrees of oxidative damage, and cause cell death [\[21\]](#). These reported negative effects underscore the necessity for further research before graphene can be applied in agroforestry.

“Effects of carbon nanotubes and derivatives of graphene oxide on soil bacterial diversity”. 2019. [\[52\]](#)

“Graphene phytotoxicity in the seedling stage of cabbage, tomato, red spinach, and lettuce”. 2011. [\[56\]](#)

“Single Walled Carbon Nanotubes Exhibit Dual-Phase Regulation to Exposed Arabidopsis Mesophyll Cells”. 2011. [\[57\]](#)

“Advances in transport and toxicity of nanoparticles in plants”. 2023. [\[118\]](#)



Studies on the toxicity of Graphene derivatives on all elements of aquatic environments

“Assessment of graphene oxide ecotoxicity at several trophic levels using aquatic microcosms”. 2020. [\[102\]](#)

The trophic chain was composed of a consortium of algae and bacteria as primary producers, chironomid larvae as primary consumers and decomposers while larvae of the amphibian *Pleurodeles waltii* constituted the secondary consumers. Monitoring of multiple ecotoxicological and ecological endpoints allowed to observe changes in bacterial communities while no toxic effects were noticed in chironomids. However, chironomids feeding behaviour changed as a consequence of GO contamination, leading to an increase in leaf litter consumption. Genotoxic effects were noticed in *Pleurodeles* larvae. This study highlights the importance of using such experimental systems to better encompass the

ecotoxic potential of GO through the determination of toxicological routes and consequences on ecosystem's functioning.

Effects of environmental factors on graphene oxide ecotoxicity towards crustacean *Daphnia magna*". 2018. [\[121\]](#)

"Acute toxicity assessment of polyaniline/Ag nanoparticles/graphene oxide quantum dots on *Cypridopsis vidua* and *Artemia salina*". 2021. [\[125\]](#)

"The effects of humic acid on the toxicity of graphene oxide to *Scenedesmus obliquus* and *Daphnia magna*". [\[88\]](#)

"Acute Toxicity of Graphene to Water Flea, Brine Shrimp and Zebrafish". 2016. In order to understand the potential ecotoxicity of Graphene released into aquatic environment, the toxicities of two types of this material were assessed using two freshwater (*Daphnia magna* and *Danio rerio*) and one saltwater (*Artemia franciscana*) organism. [\[103\]](#)

"Fast Identification and Quantification of Graphene Oxide in Aqueous Environment by Raman Spectroscopy". 2020. [\[40\]](#)

GO was chemically reduced by hydrazine hydrate to form partially reduced GO (PRGO), where the fluorescence from GO was largely reduced, and the Raman signals (G band and D band) were dominating. According to the Raman characteristics, GO was easily distinguished from other carbon nanomaterials in aqueous environments, such as carbon nanotubes, fullerene and carbon nanoparticles.

"Carbon and Metal Quantum Dots toxicity on the microalgae *Chlorella pyrenoidosa*". 2016. [\[68\]](#)

"Toxicity of microwave-synthesized silver-reduced graphene oxide nanocomposites to the microalga *Chlorella vulgaris*: Comparison with the hydrothermal method synthesized counterparts". 2020. Cette étude porte sur les effets toxiques

des nano-composites d'oxyde de graphène réduit à l'argent synthétisés par micro-ondes sur l'algue *Chlorella vulgaris*. [\[92\]](#)

Moreover, reduction in the phenol and flavonoid contents, enhancement of H_2O_2 content, changes in the antioxidant enzymes activity and decreases in the growth parameters as well as photosynthetic pigments quantities confirmed the toxicity of MS-Ag-rGO to the C. vulgaris cells.

“The toxicity of graphene oxide affected by algal physiological characteristics: A comparative study in cyanobacterial, green algae, diatom”. 2019. This study investigates the toxicity of graphene oxide to green algae (*Chlorella vulgaris*, *Scenedesmus obliquus*, *Chlamydomonas reinhardtii*), cyanobacteria (*Microcystis aeruginosa*) and diatoms (*Cyclotella* sp.). The objective was to evaluate how the physiological characteristics of the algae affect the toxicity of graphene oxide. [\[47\]](#)

Meanwhile, growth inhibition and cell division were significantly correlated with the oxidative stress and membrane permeability, suggesting the latter two indicators can effectively signal GO toxicity to algae. The findings of this study provide novel insights into the toxicity of graphene materials in aquatic environments.

“Toxicity Studies on Graphene-Based Nanomaterials in Aquatic Organisms: Current Understanding”. 2020. This study focuses on the toxic effects of graphene and graphene oxide on aquatic invertebrates and fish (cell lines and organisms). [\[28\]](#)

“Effects of graphene oxide nanosheets in the polychaete *Hediste diversicolor*: Behavioural, physiological and biochemical responses”. 2022. This study focuses on evaluating the effects of different concentrations of graphene oxide nanosheets on the behavior, feeding activity, mucus production, regeneration capacity, antioxidant status,

biochemical damage, and metabolism of the *Hediste diversicolor* worm. [\[32\]](#)

Numerous applications exist for graphene-based materials, such as graphene oxide (GO) nanosheets. Increased concentrations of GO nanosheets in the environment have the potential to have a large negative effect on the aquatic environment, with consequences for benthic organisms, such as polychaetes. The polychaete *Hediste diversicolor* mobilises the sediments, hence altering the availability of contaminants and the nutrients biogeochemical cycle. As such, this study proposes to assess the effects of different GO nanosheet concentrations on the behaviour, feeding activity, mucus production, regenerative capacity, antioxidant status, biochemical damage and metabolism of *H. diversicolor*. This study evidenced that *H. diversicolor* exposed to GO nanosheets had a significantly lower ability to regenerate their bodies, took longer to feed and burrow into the sediment and produced more mucus.

“Humic acids alleviate the toxicity of reduced graphene oxide modified by nanosized palladium in microalgae”. 2022. [\[41\]](#)

“Toxicological effects resulting from co-exposure to nanomaterials and to a β -blocker pharmaceutical drug in the non-target macrophyte species *Lemna minor*”. 2023. [\[37\]](#)

“The cytotoxicity of nano- and micro-sized graphene oxides on microalgae depends on the characteristics of cell wall and flagella”. 2023. This study investigates the cytotoxicity of nanosized and micro-sized graphene oxide on microalgae depends on the characteristics of the cell wall and flagella. [\[34\]](#)

The nano-sized GO inhibited the growth of cell wall-deficient strains and reduced the photosynthetic activity. The micro-sized GO inhibited the growth of all strains, but the inhibition efficiency was higher in flagella-deficient strains, indicating that cell wall and flagella have different roles in response to contaminant exposure. The electron

microscopy analysis demonstrated that nano-sized GO caused the cell rupture in cell wall-deficient strains. In flagella-deficient strains, the nano- and micro-sized GOs were parallelly attached on the surface of cells, covering the cells. The wrapping of flagella-deficient cells by GO led to the increase of reactive oxygen species (ROS) contents. These results indicate main cytotoxic mechanism of nano-sized GO was the membrane damage of cells, and the presence of cell wall can protect the cells from the attack of nano-sized GO. On the one hand, the presence of flagella might help to avoid the attachment of GO while the cell proliferation and photosynthesis were inhibited in flagella-deficient cells due to the GO wrapping.

“Integrating FTIR 2D correlation analyses, regular and omics analyses studies on the interaction and algal toxicity mechanisms between graphene oxide and cadmium” 2022. [\[42\]](#)

“A trophic transfer study: accumulation of multi-walled carbon nanotubes associated to green algae in water flea *Daphnia magna*”. 2021. [\[11\]](#)

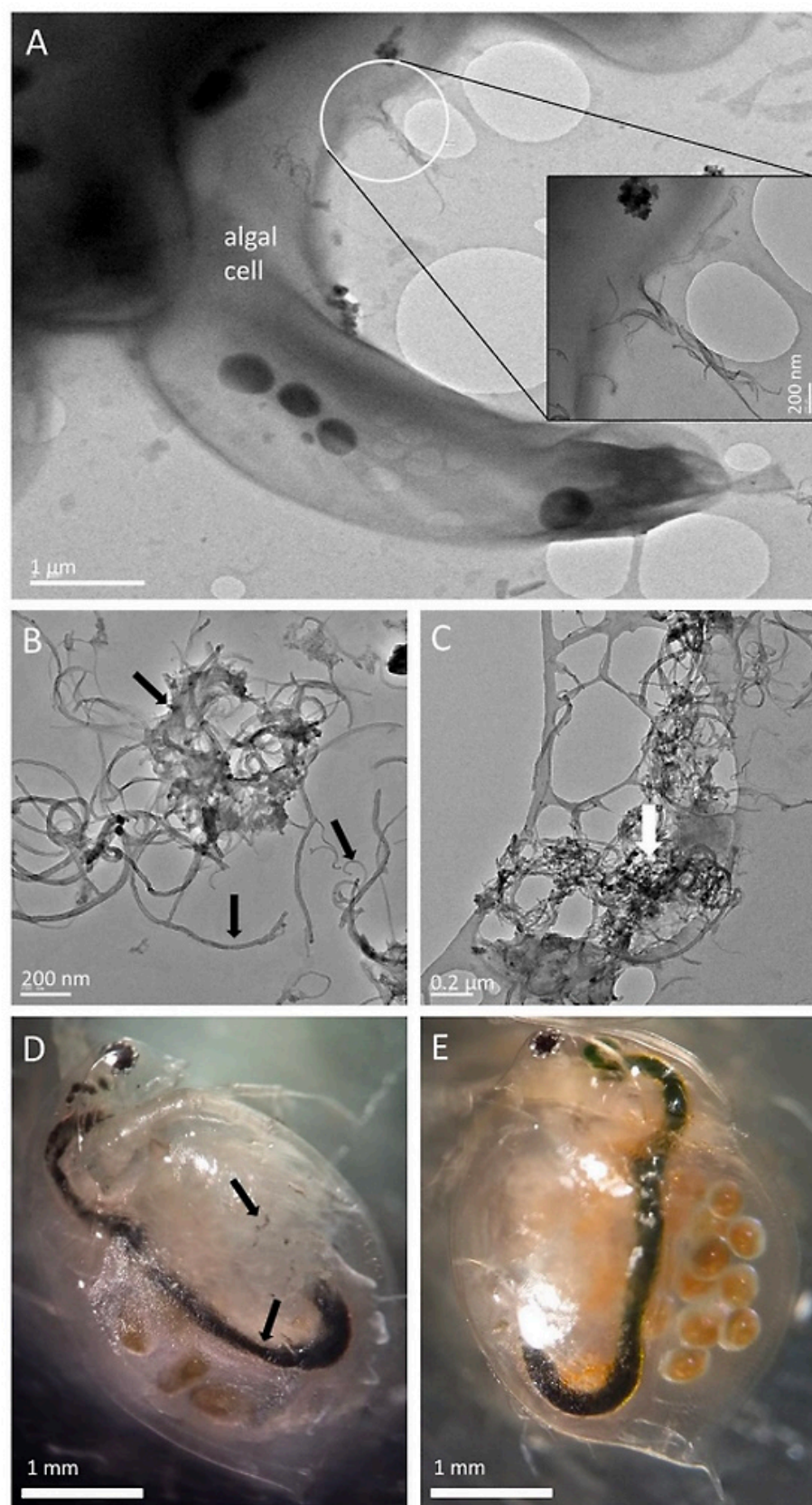


Fig. 2. (A – E): Transmission electron microscopy (TEM) images of wMWCNT in association with green alga *R. subcapitata* (A), wMWCNT dispersion (0.1 mg L⁻¹) (B) and excreted wMWCNT by *D. magna* after uptake period of 24 h (C). D and E show the light microscopy image of an adult *D. magna* exposed to 100 µg wMWCNT L⁻¹ and without exposure over a period of 72 h, respectively.

“A trophic transfer study: accumulation of multi-walled carbon nanotubes associated to green algae in water flea *Daphnia magna*”. 2021. [11]

“Wastewater treatment nexus: Carbon nanomaterials towards potential aquatic ecotoxicity”. 2021. [\[13\]](#)

“A workflow to investigate the impacts of weathered multi-walled carbon nanotubes to the mud snail *Lymnaea stagnalis*”. 2021. [\[5\]](#)

“Colloidal Behavior and Biodegradation of Engineered Carbon-Based Nanomaterials in Aquatic Environment”. 2022. This review focuses on the current knowledge regarding the colloidal behavior, transformation, and biodegradation of different types of CNMs, including graphene and graphene-like materials, carbon nanotubes, fullerenes, and carbon quantum dots. The other part of this work presents an overview of the known mechanisms of CNM biodegradation and discusses current research related to CNM biodegradation in aquatic species. [\[14\]](#)

“Interactions between multi-walled carbon nanotubes and plankton as detected by Raman spectroscopy”. 2022. [\[44\]](#)

Studies on the ability of Graphene derivatives to allegedly improve plant growth

“Multi-walled carbon nanotubes promote the accumulation, distribution, and assimilation of ^{15}N - KNO_3 in *Malus hupehensis* by entering the roots”. Mars 2023. Cette étude porte sur l’impact des nano-tubes de carbone à multiples parois sur l’utilisation de l’azote chez les pommiers. [\[85\]](#)

“Graphene: A new technology for agriculture”. 2021. This study focuses on a review of the use of graphene in different segments, explaining that this product can be used in various industrial sectors. These are mainly in agriculture (such as in major crops of great importance, such as coffee), the food industry and the environment, as a plant growth stimulator and

in fertilizers, nano-encapsulation and smart release systems, antifungal and antibacterial agents, smart packaging, water treatment and ultrafiltration, contaminant removal, pesticide and insecticide quantification, detection systems and precision agriculture. [\[90\]](#)

“Opportunities for graphene, single-walled and multi-walled carbon nanotube applications in agriculture: A review”. 2022. [\[66\]](#)

“Fluorescent carbon-dots enhance light harvesting and photosynthesis by overexpressing PsbP and PsiK genes”. 2021. This study focuses on enhancing **light harvesting** and photosynthesis by overexpressing PsbP and PsiK genes with fluorescent carbon quantum dots. [\[73\]](#)

“Enhanced Biological Photosynthetic Efficiency Using Light-Harvesting Engineering with Dual-Emissive Carbon Dots”. 2018. This study focuses on improving the efficiency of biological photosynthesis through **light harvesting** engineering with dual-emitting carbon quantum dots. [\[64\]](#)

Note this novel concept of using graphene derivatives to augment « sunlight harvesting » processes... and thus, photosynthesis.

“Carbon dots as light converter for plant photosynthesis: Augmenting light coverage and quantum yield effect”. 2021. This study focuses on carbon quantum dots **as light converters for plant photosynthesis**, inducing an increase in light coverage and a quantum yield effect. [\[65\]](#)

“Biofertilizers and nanofertilizers for sustainable agriculture: Phytoprospects and challenges.” 2022. This study focuses on bio-fertilizers and nano-fertilizers for **sustainable agriculture**. [\[63\]](#)

“Carbon-Based Nanomaterials for Sustainable Agriculture: Their Application as Light Converters, Nanosensors, and Delivery”. 2022. This study focuses on the different types of carbon-

based nano-materials and their applications in light converters, nano-sensors and delivery tools in **sustainable agriculture**. [\[61\]](#)

“Vital roles of sustainable nano-fertilizers in improving plant quality and quantity-an updated review”. 2021. This study focuses on the vital roles of **sustainable nano-fertilizers** in improving plant quality and quantity. [\[89\]](#)

It should be noted that, according to some studies, this would be “sustainable agriculture”... but, according to field ecologists, what is sustainable is, rather, the graphene derivatives that self-accumulate in soils, terrestrial and aquatic environments – and that toxify them.

“Nanocarbon fertilizers: Implications of carbon nanomaterials in sustainable agriculture production”. 2020. This study focuses on the interactions of carbon-based nano-materials such as fullerene, carbon nanotubes, carbon quantum dots, carbon cone dots and graphene with agricultural plants **for sustainable agriculture**. [\[62\]](#)

Carbon nanofertilizers have shown their role in the improvement in seed germination, seedling growth, shoot-root length enhancement, enhancement of chlorophyll content and photosynthesis rate, and plant biomass increment in various cereals and horticultural crops. The transportation of carbon-based nanomaterials is illustrated in plants and how their accumulation causes phytotoxicity is explained. Further, the potential of carbon nanomaterials in agriculture is also discussed for commercial production of nanocarbon as fertilizer. Some of the carbon-based nanomaterials showed phytotoxicity after a certain high concentration level, but there is more research required to optimize the threshold concentration for each crop-carbon nanomaterial model where maximum growth and production can be obtained.

“Graphene oxide exhibited positive effects on the growth

of *Aloe vera*". 2021. This study focuses on increasing the growth of Aloe Vera by adding graphene oxide nanoparticles to irrigation water – at 50 mg per liter. [\[1608\]](#)

"This new technology is called « bionic strategy for plant growth acceleration by injection of nanoparticles".

"Chitosan and Graphene Oxide Nanocomposites as Coatings for Controlled-Release Fertilizer". 2019. [\[938\]](#)

"Effects of graphene on morphology, microstructure and transcriptomic profiling of *Pinus tabulaeformis* roots". 2021. This study focuses on increasing the growth of Chinese Red Pine (*Pinus tabulaeformis*) by adding graphene oxide nanoparticles to the irrigation water – at 25 mg per liter. [\[1610\]](#)

Notwithstanding these positive effects, it is reported that graphene may be detrimental to plants under certain conditions. The sharp edges of graphene may physically cut cell membranes and compromise their integrity [18]. In addition to increasing the uptake of water and fertilizer by roots, graphene also increased the uptake of heavy metals such as cadmium and arsenic, which increased their toxic effects [19, 20]. Furthermore, graphene treatment may lead to the alteration of pH, metabolic processes, induce different degrees of oxidative damage, and cause cell death [21]. These reported negative effects underscore the necessity for further research before graphene can be applied in agroforestry.

"Novel hydrated graphene ribbon unexpectedly promotes aged seed germination and root differentiation". 2014. [\[45\]](#)

"Graphene quantum dots as enhanced plant growth regulators: effects on coriander and garlic plants". 2015. [\[48\]](#)

"Sulfonated graphene-induced hormesis is mediated through oxidative stress in the roots of maize seedlings". 2016. Cette étude porte sur l'hormèse induite par le graphène sulfoné qui

est médiée par le stress oxydatif dans les racines des plantules de maïs. [\[54\]](#)

“Graphene oxide as a water transporter promoting germination of plants in soil”. 2018. [\[49\]](#)

“Improvement of Commercially Valuable Traits of Industrial Crops by Application of Carbon-based Nanomaterials”. 2019. This study focuses on the biological effects of graphene and carbon nanotubes on fiber-producing species (cotton, *Gossypium hirsutum*) and ornamental species (*Catharanthus roseus*). [\[50\]](#)

A study was published, in 2014, entitled “Slow-release fertilizer encapsulated by graphene oxide films” [\[936\]](#) as well as another study, in 2017, entitled “Cogranulation of Low Rates of Graphene and Graphene Oxide with Macronutrient Fertilizers Remarkably Improves Their Physical Properties”. [\[937\]](#)

“Slow-release fertilizer encapsulated by graphene oxide films”. 2014. [\[51\]](#)

“Cogranulation of Low Rates of Graphene and Graphene Oxide with Macronutrient Fertilizers Remarkably Improves Their Physical Properties”. This study focuses on the claimed improvement of physical properties through cogranulation of low levels of graphene and graphene oxide with macronutrient fertilizers. [\[53\]](#)

“PVA-coated fluorescent carbon dot nanocapsules as an optical amplifier for enhanced photosynthesis of lettuce”. 2020. This study focuses on the enhancement of lettuce photosynthesis with fluorescent carbon dot nano-capsules coated with polyvinyl acetate as optical enhancer. [\[71\]](#)

“Magnesium-nitrogen co-doped carbon dots enhance plant growth through multifunctional regulation in photosynthesis”. 2021. This study focuses on enhancing plant growth through multifunctional regulation of photosynthesis by magnesium and

nitrogen codoped carbon dots. [\[72\]](#)

“Transfer, transportation, and accumulation of cerium-doped carbon quantum dots: Promoting growth and development in wheat”. 2021. This study investigates the transfer, transport and accumulation of cerium-doped carbon quantum dots to allegedly promote wheat growth and development. [\[23\]](#)

“Graphene Oxide-Assisted Promotion of Plant Growth and Stability”. 2020. This study focuses on graphene oxide to increase the growth of plants – such as watermelon. [\[29\]](#)

We showed that with an appropriate amount provided, graphene oxide had a positive effect on plant growth in terms of increasing the length of roots, the area of leaves, the number of leaves, and the formation of flower buds. In addition, graphene oxide affected the watermelon ripeness, increasing the perimeter and sugar content of the fruit. We believe that graphene oxide may be used as a strategy for enabling the acceleration of both plant growth and the fruit ripening process.

“Graphene Oxide, a Novel Nanomaterial as Soil Water Retention Agent, Dramatically Enhances Drought Stress Tolerance in Soybean Plants”. 2022. [\[36\]](#)

Taken together, our findings revealed that GO could directly increase plant defense enzymes, hormone content, and the expression of drought-related genes, thereby improving the soybean’s ability to resist drought. These findings could provide new opportunities for improving drought tolerance in soybeans through effective soil water retention agents.

“Effects of Graphene Oxide on Plant Growth: A Review”. 2022. This study focuses on the effects of graphene oxide on plant growth to facilitate its safe and effective use. [\[33\]](#)

Several reports of graphene oxide (GO) promoting plant growth

have sparked interest in its potential applications in agroforestry. However, there are still some toxicity studies that have raised concerns about the biosafety of G0. These reports show conflicting results from different perspectives, such as plant physiology, biochemistry, cytology, and molecular biology, regarding the beneficial and detrimental effects of G0 on plant growth. Seemingly inconsistent studies make it difficult to effectively apply G0 in agroforestry.

“Functional carbon nanodots improve soil quality and tomato tolerance in saline-alkali soils”. 2022. This study focuses on the alleged improvement of soil quality and tolerance of tomato in saline-alkaline soils using carbon quantum dots. [\[4\]](#)

“Carbon nanotubes can promote seed germination via seed coat penetration”. 2011. This study investigates the enhanced germination of various crops using single-walled carbon nanotubes: *Capsicum annuum*, *Salvia macrosiphon*, *Festuca arundinace*... [\[84\]](#)

“Nanomaterials in plant protection and fertilization: current state, foreseen applications, and research priorities”. 2012. [\[79\]](#)

“Proceedings of a workshop on “Nanotechnology for the agricultural sector: from research to the field””. 2014. [\[80\]](#)

“Carbon nanomaterials: production, impact on plant development, agricultural and environmental applications”. 2016. [\[88\]](#)

Studies on the ability of Graphene derivatives to eliminate or mitigate, allegedly, toxicities or pests in agriculture

“Multiwall carbon nanotubes modulate paraquat toxicity in *Arabidopsis thaliana*”. 2018. [\[70\]](#)

Carbon nanotubes can be either toxic or beneficial to plant growth and can also modulate toxicity of organic

contaminants through surface sorption. The complex interacting toxic effects of carbon nanotubes and organic contaminants in plants have received little attention in the literature to date. In this study, the toxicity of multiwall carbon nanotubes (MWCNT, 50 mg/L) and paraquat (MV, 0.82 mg/L), separately or in combination, were evaluated at the physiological and the proteomic level in *Arabidopsis thaliana* for 7–14 days. The results revealed that the exposure to MWCNT had no inhibitory effect on the growth of shoots and leaves.

“Whole-Transcriptome Responses to Environmental Stresses in Agricultural Crops Treated with Carbon-Based Nanomaterials”. 2021. [\[67\]](#)

When subjected to salt stress, sorghum seedlings showed modified expression in 51 stress-related genes. The introduction of CNTs or graphene into the salty growth medium resulted in the restoration of the expression of 29 affected genes, resembling that of untreated sorghum seedlings.

“Applications of carbon quantum dots to alleviate Cd²⁺ phytotoxicity in *Citrus maxima* seedlings”. 2019. This study focuses on the purported mitigation of cadmium toxicity in grapefruit trees with carbon quantum dots – up to 900 mg/liter. [\[17\]](#)

“Carbon Dots as a Protective Agent Alleviating Abiotic Stress on Rice (*Oryza sativa* L.) through Promoting Nutrition Assimilation and the Defense System”. 2020. This study focuses on carbon quantum dots used as a protective agent allegedly mitigating abiotic stress on rice (*Oryza sativa*) by promoting nutrition uptake and the defense system. [\[18\]](#)

“Graphene quantum dots as cysteine protease nanocarriers against stored grain insect pests”. 2020. This study focuses on the use of graphene quantum dots as cysteine protease nano-vectors, from the species *Albizia procera*, against, allegedly,

two species of stored grain insect pests, the small mealworm, *Tribolium castaneum* and the grain capuchin, *Rhyzopertha dominica*. [\[19\]](#)

“Synergistic Effects of Graphene Oxide and Pesticides on Fall Armyworm, *Spodoptera frugiperda*”. 2022. [\[38\]](#)

The results showed that graphene oxide could enhance the activity of four selected pesticides: chlorantraniliprole, cypermethrin beta, methoxyhydrazide and spinetoram.

“Can the multi-walled carbon nanotubes be used to alleviate the phytotoxicity of herbicides in soils?”. 2021. [\[12\]](#)

Results indicate efficient alleviation of herbicide-induced phytotoxicity to rice and tobacco due to MWCNTs amendment. When 0.4% MWCNTs were applied, the concentration of sulfentrazone that inhibited the same rice height by 50% (IC_{50}) increased to more than 3 times that of pure soil. When the MWCNTs were used to alleviate the phytotoxicity of quinclorac to tobacco, the MWCNTs not only alleviated the phytotoxicity of quinclorac but also promoted the growth of tobacco. The MWCNTs amended soil significantly increased the adsorption of herbicide to soil than biochar. The soil microbial analysis shows that MWCNTs had no significant effect on soil microbial community diversity, but the long-term exposure to MWCNTs could change the structure of the soil microbial community. Above all, our results highlighted the potential implication of the MWCNTs to ensure crop production by promoting crop growth and reducing the residual bioavailability of herbicides.

“Copper stress alleviation in corn (*Zea mays*): Comparative efficiency of carbon nanotubes and carbon nanoparticles”. 2022. This study investigates the comparative role of carbon nanotubes and carbon nanoparticles in maize (*Zea mays*) seed germination, seedling growth and Copper stress mitigation. [\[6\]](#)

“Multiwalled Carbon Nanotubes Alter the PSII Photochemistry, Photosystem-Related Gene Expressions, and Chloroplastic Antioxidant System in *Zea mays* under Copper Toxicity”. 2022. [\[8\]](#)

“Applications of nanomaterials in agricultural production and crop protection: a review”. 2012. [\[81\]](#)

“Synthesis of nanopesticides by encapsulating pesticide nanoparticles using functionalized carbon nanotubes and application of new nanocomposite for plant disease treatment”. 2014. [\[83\]](#)

“Evaluation and mechanism of antifungal effects of carbon nanomaterials in controlling plant fungal pathogen”. 2014. [\[69\]](#)

“Graphene oxide as a pesticide delivery vector for enhancing acaricidal activity against spider mites”. 2019. [\[74\]](#)

A few Patents concerning the insertion of graphene oxide in Fertilizers and in Pesticides/Biocides of all kinds

In the agricultural field, there are already a good number of patents for the insertion of graphene oxide in fertilizers and in pesticides/biocides of all kinds, as well as for the intensification of growth processes.

There is even a patent, from 2020, entitled “Application of graphene aqueous dispersion in farmland water retention, fertilizer retention and bacteriostasis”. It is, therefore, a question of disseminating an aqueous dispersion of graphene in agricultural water retention, in fertilizer tanks... **under a bacteriostatic pretext.** [\[1112\]](#)

These patent applications date from the last few years. Here is a very partial list, out of thousands, of such patents:

“A kind of foliar fertilizer of graphene-containing nano

material". 2016 Chine. CN106747954A. [\[922\]](#)

"Porous oxidation graphene and preparation method thereof and porous oxidation graphene coated slow-release chemical fertilizer and preparation method thereof". 2017. Chine. CN107585764A. [\[923\]](#)

"Graphene oxide and Antagonistic Fungi compound the application in terms of preventing plant Phytophthora root rot". 2018. Chine. CN108782610A. [\[926\]](#)

"Water-based graphene oxide nano pesticide and preparation method and application thereof". 2020. Chine. CN111149798A. [\[927\]](#)

"Graphene oxide-containing pesticide composition". 2019. Chine. CN112293419A. [\[928\]](#)

"Composition for crop improvement". 2019. Corée du sud. KR20210040597A. [\[929\]](#)

"Fertilizer composition of controlled release and application thereof". Chine. CN108117437A. 2018. [\[75\]](#)

[Connect with Dominique Guillet, Xochipelli](#)

Cover image credit: [Adrien Nicolai/RP](#) – Simulations by Oak Ridge National Laboratory and Rensselaer Polytechnic Institute reveal the potential of graphene oxide frameworks, pictured in black, to remove contaminants such as salt ions, seen in blue and green, from water.

See Related:

[Vaccines as Vectors for the Installation of Nanotechnology: Evidence That Nano Receiving Antennas Are Being Inoculated](#)

[Into the Human Body](#)

[Graphene Oxide & Nano-Router Circuitry in Covid Vaccines:
Uncovering the True Purpose of These Mandatory Toxic
Injections](#)

James Corbett: The Future Food False Flag

[The Future Food False Flag](#)

by [James Corbett](#), [The Corbett Report](#)

March 6, 2023

The food supply is under attack.

But by whom?

And for what purpose?

Find out the dirty truth about the global food crisis and how the powers-that-shouldn't-be are trying to use this crisis as an opportunity to usher in the Great Food Reset on today's fast-paced edition of The Corbett Report podcast.

Watch on Archive / [BitChute](#) / [Odysee](#) / [Substack](#) / [Download the mp4](#)

Documentation

[The Attack on Food Symposium + Solutions to Fight Back](#)

Time Reference:	01:07
-----------------	-------

[At least two people injured in explosion at Hermiston food plant](#)

Time Reference:	02:52
-----------------	-------

[Massive Fire Engulfs Salinas Food Processing Plant; Neighborhoods Evacuated](#)

Time Reference:	03:06
-----------------	-------

[Fire at Maricopa Food Pantry destroys 40,000 pounds of food](#)

Time Reference:	03:18
-----------------	-------

[Dade City poultry farm fire likely killed 250,000 chickens](#)

Time Reference:	03:30
-----------------	-------

[West Side food processing plant left with smoke damage after fire, Sutter](#)

Time Reference:	03:39
-----------------	-------

[Crews battle large commercial fire at nut processing plant in Sutter](#)

Time Reference:	03:48
-----------------	-------

[Potato-Processing Plant Fire In Belfast, Maine Leads To Shelter-In-Place](#)

Time Reference:	03:59
-----------------	-------

[Fire kills tens of thousands of chickens at Wright County farm](#)

Time Reference:

04:13

[Meat Processing Facility Catches Fire](#)

Time
Reference:

04:22

[Zeemap of food processing incidents 2021-2022](#)

Time
Reference:

05:37

[FBI warns of cyberattacks on US food plants after a dozen hit by mys](#)

Time Reference:

07:30

[Cyberattack on Dole](#)

Time
Reference:

09:39

[Up Next: The Collapse of the Food Supply Chain](#)

Time
Reference:

10:46

[Rahm Emanuel on the Opportunities of Crisis](#)

Time
Reference:

14:15

[Ian Bremmer – Beyond 2023: A Global Outlook](#)

Time Reference:	14:25
-----------------	-------

[Henry Kissinger \(HQ\) Obama and The New World Order 1/5/09](#)

Time Reference:	14:35
-----------------	-------

[How a misunderstanding about Chinese characters has led many astray](#)

Time Reference:	15:11
-----------------	-------

<u>Eating Bioengineered Spores</u>	
Time Reference:	17:32

[Israeli Company's Pioneering 'Sweet Proteins'](#)

Time Reference:	19:28
-----------------	-------

[Nicole Kidman Eats Bugs | Secret Talent Theatre | Vanity Fair](#)

Time Reference:	21:08
-----------------	-------

<u>Eating bugs to save the planet</u>	
Time Reference:	21:13

[Why you will be eating bugs very soon | James Rolin | TEDxBozeman](#)

Time Reference:	21:36
-----------------	-------

[This London insect farm is changing the way we eat | Pioneers for Our Future](#)

Time Reference:

22:36

[EATING JAMES FRANCO: Bite Lab Wants to Experiment with Celebrity Tis](#)

Time Reference:

23:46

[Insects on the menu as EU approves two for human consumption](#)

Time Reference:

25:44

[What is the Future of Food?](#)

Time
Reference:

26:31

[Who is Behind the Great Food Reset?](#)

Time
Reference:

27:37

[The Gates/Rockefeller “Green Revolution” Scam Exposed](#)

Time
Reference:

27:57

[Glyphosate Now the Most-Used Agricultural Chemical Ever](#)

Time
Reference:

30:04

[Bill Gates-Backed Vegan Burgers Hit Mainstream With Safeway Deal](#)

Time Reference:

30:58

[America's Biggest Owner Of Farmland Is Now Bill Gates](#)

Time Reference:	31:20
--------------------	-------

["insects" search on World Economic Forum website](#)

Time Reference:	32:08
--------------------	-------

[EAT – who we are](#)

Time Reference:	32:22
--------------------	-------

[USAID: Systemic Solutions for Climate Change Adaptation and Mitigation](#)

Time Reference:	
-----------------	--

[Another Globalist "Simulation" Comes True](#) (Food Chain Reaction exercise)

Time Reference:	33:45
-----------------	-------

[Biodigital Convergence: Bombshell Document Reveals the True Agenda](#)

Time Reference:	39:59
-----------------	-------

[The Future of Food \(Is Ours to Decide\)](#)

Time Reference:	41:57
--------------------	-------

[Connect with James Corbett](#)

Cover image credit: [Myriams-Fotos](#)