Viewpoint: ‘Environmentalists are wrong on technological tweaks to agriculture’: How activists undermine their credibility — and society’s need for more climate-adaptive sustainable farming

Public concern about the environment has not always been part of the social conscience in North America. After all, European colonialists viewed the ‘new world’ as a vast and inexhaustible wilderness. However, as the landscape gradually shifted from forest to farmland, efforts to preserve the continent’s natural resources grew. These conservationist efforts came to characterize North America’s first wave of environmentalism, marked mostly by establishing national and provincial parks to focus on the depletion (rapid in some areas) of natural resources and to preserve unique ecosystems.

The next great wave came in the post-WWII period, as governments began to establish ministries of environment and the early efforts to develop and standardize an evidence-based risk assessment methodology. Governments developed new policies to keep up with our growing needs and standards. We have seen a wide range of policy initiatives, such as preventing sewage from being dumped into waterways, and evidence-based regulations have been updated regularly regarding food safety.

Societal concerns about government responses to important environmental issues began to coalesce in the 1960s, sparked by concerns highlighted in Rachel Carson’s 1962 book *Silent Spring,* such as the use of chemicals and the impacts they were having on nature and the environment.

Many of today’s most influential environmental groups were birthed in this era, focusing on evidence-based issues, such as threats from acid rain and waterway pollution. One of Greenpeace Canada’s co-founders, Patrick Moore has spoken about how evidence was the cornerstone of their early advocacy efforts.

But beginning in the mid-1980s, a decided shift occurred amongst the more muscular environmental non-governmental organizations (NGOs) – from challenging scientifically outdated policies based on consensus science to viewing environmentalism as an ideological tool to shape policy grounded in ideology. Certain technologies were viewed as acceptable to one environmental group or another and others were not, with the decisions driven less and less by scientific consensus.

Moore was one of the early dissenters from this change in mission. He parted ways with Greenpeace in 1986, criticizing what he believed were scare tactics and disinformation employed by some within the environmental movement. Environmentalism on the extremes had, in his words, “abandoned science and logic in favor of emotion and sensationalism.” He advocated for what he called “sensible environmentalism” that embraced the possibility that many concerns were addressable and ‘doom and gloomism’ were self-defeating.

patrick moore greenpeace e

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Patrick Moore

He and others have mapped out how they believe the North American and European environmental movements went off track. Advocating for policy changes based on evidence changed in the late 1970s when environmental NGOs (ENGOs) began to oppose nuclear energy without supporting evidence of dangers or harms. The opposition to nuclear energy was based on subjective precaution, rather than empirical evidence.

This same subjective, precautionary-based opposition came into play when ENGOs voiced their opposition to the initial commercialization of genetically modified (GM) crops in the 1990s. Large multinational ENGOs, such as Greenpeace, Sierra Club, Friends of the Earth and the Third World Network, led the opposition. These groups were now often ignoring evidence and engaging directly in politics. It put them in direct contradiction with what risk assessment experts were determining in GM crop-adopting countries such as Argentina, Australia, Brazil, Canada, China, Portugal, Romania, Spain and the United States, where these experts all indicated that the evidence from GM crop production posed no human health or environmental risks that differed from conventional, non-GM crop varieties.

Within the first few years following the commercialization of GM crops in the mid-1990s, ENGOs advanced a variety of arguments against the corporations that developed GM crops and the technology itself. Many of the questions posed in the early years were reasonable, as the technology was innovative and under-evaluated. It was important to examine ENGO concerns, such as to what degree small landholder farmers would benefit; the ability to patent technologies; increased chemical use; and higher rates of herbicide resistance in weeds. After all, agricultural biotechnology was a transformative technology that fundamentally changed entire food production chains.

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Phillips outlined in his comprehensive book on the costs and benefits of GM technology, "Governing Transformative Technological Innovation: Who's in Charge", better investigate sooner rather than later. Many research collaborations required academics from different disciplines that had not previously worked together, to begin to do so.

The initial findings began to be reported about the turn of the millennium, focusing on changes in chemical use and small landholder benefits. A substantial portion of this research focused on the adoption of insect-resistant Bt cotton by farmers in China. One of the early findings identified that reductions in insecticide use and increased yields were experienced by over 4 million small landholders

Academics increasingly wanted to better understand the impacts of agricultural biotechnology. Hundreds of scientists from around the world sought to investigate every aspect of this modern innovation. Much research was initially guided by concerns advanced by ENGOs. Rigorous methodologies were then developed to either refute ENGO concerns or to follow their guidance.

This research was initiated in industrial countries embracing large-scale adoption and then in developing, food-insecure countries, which were scaling the use of these technologies to smaller landholder farms. To properly assess whether the points offered by ENGOs were valid, rigorous assessment methodologies needed to be applied, evidence gathered, and analysis undertaken. This process is the cornerstone of scientific research and knowledge creation, as it ensures that evidence is gathered and analyzed to better inform decision-making processes. In short, the research began to quantify benefits for small landholders. For example, even though seed prices were higher for GM varieties, input costs dropped and yields increased, such that the adoption of GM crops increased profitability.

This research also helped underscore that, as for every technology, GM won't work equally for every adopter; each farmer needs to assess how the technology might work for them. As a result, some farmers determined that the technology didn't work well for their operations; but the vital part of this process is that they had the opportunity to assess the innovation for themselves.

The technology did not work as well as hoped in one grand experiment, in Burkina Faso. GM cotton was commercialized there in 2008. As had happened elsewhere in the world, it rapidly gained popularity with farmers because of its ability to resist the devastating bollworm pest without the use of expensive and potentially harmful pesticides. That meant the farmers who adopted GM cotton used less insecticide, while earning more profit from reduced costs and higher yields.

However, Burkina Faso cotton companies began expressing concerns that because the fiber was shorter than preferred varieties, it couldn't fetch premium prices on the international market. In 2016, the government suspended the production of Bt cotton while its researchers worked on introducing the Bt gene into local varieties with longer fibers. That switchover still has not occurred.

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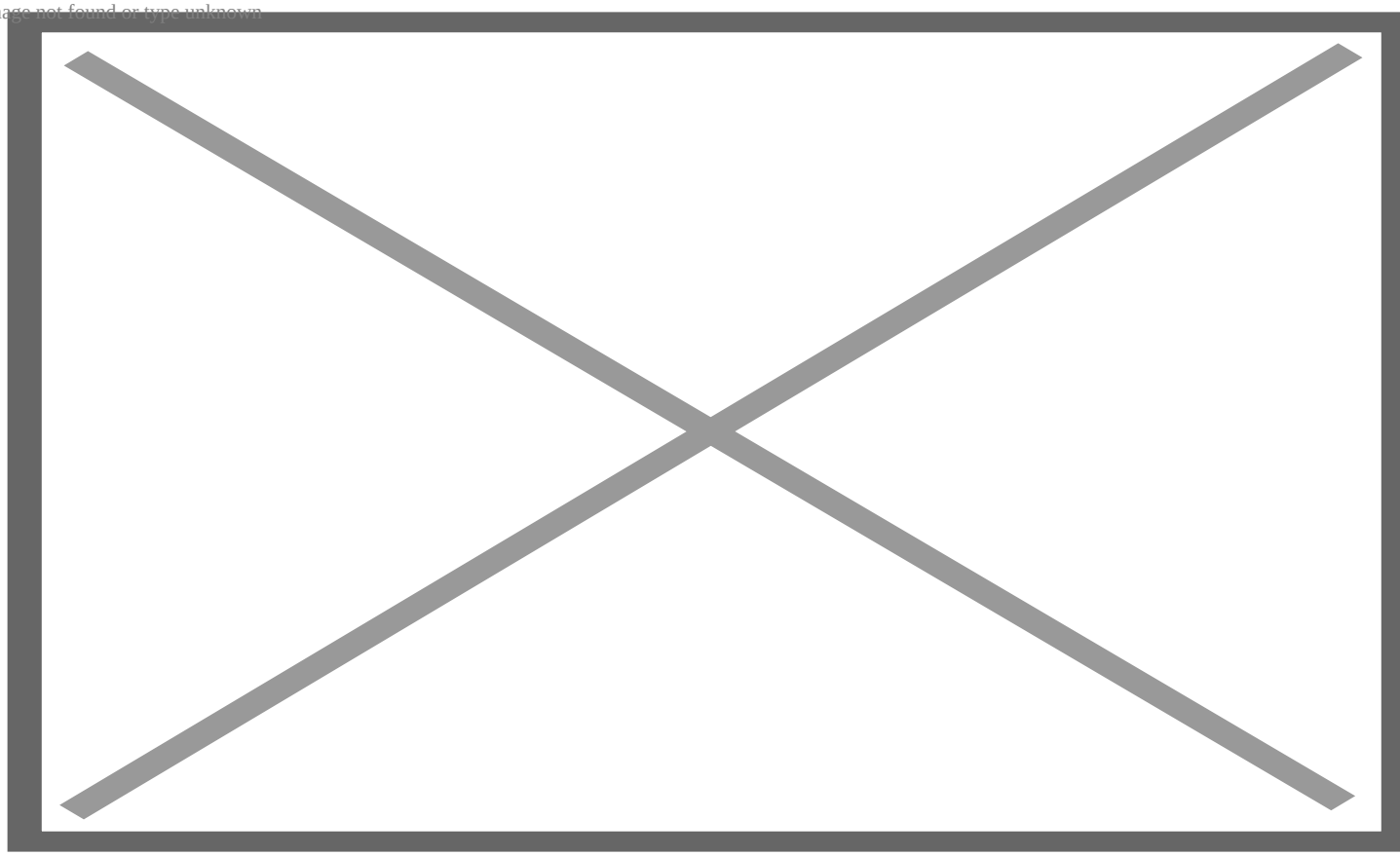

Credit: Dominic Chavez

The world is now over thirty-years into the agricultural biotechnology revolution, and there has been a huge surge in the number of peer-reviewed publications about the costs and benefits of GM technology. Almost all the science-based concerns posed by the ENGOs have proved unfounded. Small landholders in particular have benefited from the technology at rates equal to, if not higher, than large landholders

Some of the patent and freedom-to-operate research indicates that one of the key concerns of ENGOs — barriers to innovations — have existed but the technology development sector has found innovative ways of resolving these concerns. For example, second-generation technologies such as the stacking of traits for herbicide tolerance and insect resistance, as well as traits that appealed to the food processing sector and consumers, have made their way to markets large and small.

Another initial concern — the selective development of herbicide resistance and the formation of so-called superweeds, has faded. Research on the rate of herbicide resistance development in weeds in the US found that the rate declined following the commercialization of GM crops, especially as farmers became more adept at managing this problem universal to all weed control.

Following two decades of GM crop adoption, the evidence of benefits is irrefutable. In 2016, the National Academies of Science in the US released an extensive report on the adoption experiences of GM crops, examining over 900 peer-reviewed scientific articles, concluding that GM crops were not having an adverse impact on the environment and that there were positive economic outcomes for farmers. Twenty

years of research, assessment and analysis on the adoption of GM crops that integrally investigated the initial ENGO concerns has generated a substantial body of evidence by both public and private researchers demonstrating why these concerns have not materialized.

Some environmentalists who led the early ENGO GMO-rejectionist movement reviewed the science, embraced the evidence and broke with from their former rejectionist allies, in some cases becoming vocal advocates of crop biotechnology.

Where does that leave ENGOs today? Two stark options come to mind. First, they could acknowledge that independent scientists have done a diligent and robust job of compiling evidence over many years, assessing multiple aspects of agricultural biotechnology that provided evidence of benefits; they could acknowledge that after careful review of the evidence, their organization now supports the production of GM crops.

Alternatively, they could ignore thousands of peer-reviewed articles and choose to remain wholesale and indiscriminate rejectionists of the technology. Unfortunately, most ENGOs are choosing the latter option, mounting multimillion-dollar campaigns (and raising even more money on the hysteria they are generating) to scuttle these beneficial technologies.

The question that arises from this is, why?

The answer dates to what ENGOs learned from their opposition to nuclear energy in the 1970s: namely that they didn't need to provide science-based evidence to scare people about new innovations. They learned that the public could be scared through harmful accusations against innovative technologies that in any way seemed inscrutable (such as using nuclear fusion or tweaking genes), that when proven false (potentially years later) would never be front-page news.

The short-term public concern (or hysteria in many cases) has shown to result in political gains that dramatically, and sometimes harshly, changed the regulatory landscape, ultimately leading to bans. That's what happened in Europe, which all but banned the growing of GM crops; many food-insecure countries throughout the world who looked to the EU for moral and scientific guidance followed suit.

This ENGO strategy deliberately misleads the public about the safety of food production and the environmental impacts of agricultural biotechnology. It also fills the coffers of the campaigners, encouraging the public to donate money to continue to lobby and advocate against the technology. This funding allows ENGOs to campaign against all kinds of innovation.

ENGOs have boxed themselves into a corner, from where it will be near impossible to emerge unscathed. If they acknowledge the benefits of crop biotechnology, they could lose public trust as the people will realize they have been cynically manipulated for years by ENGOs who have not accurately communicated about safe and beneficial technologies. The public would not kindly view donating money to causes that were not viewed as being honest with people.

As it now stands, many prominent — and well-funded — ENGOs are opposed to technologies that can contribute to reduced food prices, which is a top-of-mind issue for consumers everywhere and as food prices increase. If ENGOs continue to ignore the ever-mounting evidence, they risk becoming even more marginalized as the public comes to realize their hypocrisy.

ENGOs rolled the dice over the past two decades, opting to ignore evidence and rather continue to promote misinformation. They raised a lot of money, but they lost equal amounts in credibility, which has hurt their ability to advocate on behalf of the many science and environmental challenges that lay ahead. Facing a future of diminishing influence, ENGOs have only themselves to blame. But the public still feels the pain of their myopia, radicalization and self-indulgence.

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