Genetically Modified Food: A Golden Opportunity?

Susan Johnson

Follow this and additional works at: https://digitalcommons.wcl.american.edu/peel_alumni
Genetically Modified Food: A Golden Opportunity?

Susan Johnson

American University Washington College of Law

Follow this and additional works at: http://digitalcommons.wcl.american.edu/sdlp

Part of the Environmental Law Commons

Recommended Citation


This Article is brought to you for free and open access by the Washington College of Law Journals & Law Reviews at Digital Commons @ American University Washington College of Law. It has been accepted for inclusion in Sustainable Development Law & Policy by an authorized administrator of Digital Commons @ American University Washington College of Law. For more information, please contact fbrown@wcl.american.edu.
GENETICALLY MODIFIED FOOD: A GOLDEN OPPORTUNITY?

By Susan Johnson*

Genetically modified organisms (“GMOs”) entered the commercial marketplace in the early 1990s with the introduction of the infamous yet ill-fated Flavr Savr tomato.1 Since then, scientists, scholars, journalists, and consumers have debated GMO safety and sustainability. On one side of the argument are those who maintain that extensive scientific research and regulatory endorsement from entities such as the National Academy of Sciences and the U.S. Food and Drug Administration has established the safety and integrity of GMOs.2 On the other side are those who cite lingering scientific uncertainty, environmental burdens, and mistrust of the biotech industry generally.3 These opponents to GMOs point to the multitude of concepts and products once thought safe and scientifically sound that ultimately proved anything but, such as tobacco and DDT.4 Still, despite this persistent debate over the virtue of genetically engineered food sources, their prevalence in the U.S. food system continues to increase.5 It is therefore crucial that thorough analysis of GMO safety and sustainability continues until more questions are answered.

Genetic modification (“GM”) is the alteration of an organism’s DNA through the synthetic introduction of new traits that allow manufacturers increased control over genetic structures, purportedly strengthening the final product’s viability and appeal.6 In turn, GMO seeds appeal to farmers for their promise of economically beneficial higher crop yields.7 Consumers may similarly benefit, as engineered fruits and vegetables are created to have longer shelf lives and smaller price tags than their unaltered counterparts.8 Given the fact that U.S. biotech companies produce approximately half of the world’s GMO crop seeds,9 generating billions of dollars in annual revenue,10 the biotech industry has much to gain from scientific confirmation and public acceptance of these purported “benefits.”

Despite persistent skepticism, GMOs dominate the domestic market, largely due to powerful initiatives that insulate the industry.11 Independent scientists who publish studies showing negative or abnormal phenomena implicating GM products have frequently endured criticism and backlash from scientific peers working to preserve GMO-friendly public policies.12 In this climate of debate, members of the biotech field aggressively defend industry practices and relentlessly contest any perceived opposition or legal violation. Industry giant Monsanto, for example, has sued more than 410 farmers in twenty-seven states,13 in some instances destroying multi-generational farms in the process.14 By contrast, anti-GMO activists have comparatively fewer and less powerful legal mechanisms at their disposal, limiting the ubiquity of their critical message.15

Recently, the decades-old GMO debate has flared again with the introduction of “Golden Rice,” a genetically modified strain of rice intended to combat worldwide hunger and disease.16 Articles in The New York Times, Forbes, and Slate (among others) have featured the controversial product, prompting supporters and opponents to reassert their positions on GMOs in a new context.17 Golden Rice is fortified with the Vitamin A precursor beta-carotene, and its creators assert that it will save countless lives and combat malnutrition and disease on an unprecedented global scale.18 Beta-carotene is a powerful nutrient found in fruits and vegetables such as carrots, sweet potatoes, and spinach that strengthens the immune system, protects and improves vision and dental health, and delivers cancer-fighting antioxidants.19 Vitamin A deficiency significantly compromises the immune system and causes blindness in up to half a million children each year.20 Alarmingly, millions of people in Africa and Asia who lack this nutrient die annually from diseases to which they would not otherwise be susceptible.21 Golden Rice skeptics view it as a wolf in sheep’s clothing—a way for biotech companies to further infiltrate the global agricultural marketplace under an altruistic guise with little regard for broader human health and environmental impacts.22 Activists urge that the real purpose of Golden Rice is to gain widespread public support for GMO crops, ultimately producing a windfall for biotech corporations to the detriment of farmers and consumers.23 They bolster this assertion by questioning Golden Rice’s viability,24 emphasizing that target African consumers do not traditionally eat rice25 and that many of the countries that purportedly stand to benefit have stringent anti-GMO policies.26

Further criticism is aimed at the unsustainability of GMO crops.27 For farmers to maintain optimal production they must apply powerful pesticides, which are genetically modified to resist the chemicals.28 This unnatural cycle has the potential to create “super pests” and “super weeds” that may threaten traditional crop varieties and alter the soil’s chemical composition.29 Though it is difficult to ascertain how extensive or lasting the damage from these cycles will be, many argue that this uncertainty alone is reason enough to proceed with caution (if at all).30

With the spread of GMO-sourced crops into the human food chain, a growing number of consumers and activists who oppose GMO proliferation are using every legal, regulatory, and grassroots tool at their disposal to slow the trend.31 In August 2013, farmers and environmental activists destroyed an experimental plot of Golden Rice in the Philippines in protest.32 Domestically,

* J.D. Candidate 2014, American University Washington College of Law

continued on page 69
opponents are demonstrating their will in the courtroom, at the polls, and in the marketplace. The growing GMO labeling movement is a major source of local and national activism. Voters in California and Washington voted to overcome significant resistance by corporations that fear GMO labeling, despite the fact that those entities label their products in 64 other countries around the world. Monsanto and others have spent $22 million to defeat the Washington labeling initiative, the most ever spent to defeat a ballot initiative in the state’s history. In 2013, twenty-six additional states introduced similar GMO labeling legislation. It remains to be seen if the biotech industry will overcome these efforts with its deep pockets, inestimable legal resources, and political muscle.

The resurgence of the GMO debate following the introduction of Golden Rice indicates that the argument is far from settled. Questions remain as to the long-term safety and sustainability of genetically modified products, generally, and the ability of Golden Rice, specifically, to effectively impact the global hunger epidemic without significant ecological consequences. History has taught us that informed skepticism has the power to inform society, protect consumers, and preserve the environment. Before Golden Rice is allowed unfettered access to the global marketplace, escalating the proliferation of GM food sources, the long-term safety and environmental sustainability of genetic modification should be further analyzed to prevent irreparable consequences.

Endnotes: Genetically Modified Food: A Golden Opportunity?


Hoffman, supra note 3.


11 See Id.


17 Harmon, supra note 17.


19 Harmon, supra note 17.

20 Harmon, supra note 17.

21 Harmon, supra note 17.

22 See Harmon, supra note 17.

23 Caroleanne Wright, GM Golden Rice: Miracle or Menace? Top Activists Speak Out, NATURAL NEWS (Sept. 19, 2013), http://www.naturalnews.com/042124_golden_rice_gmos_activists.html. Furthermore, biotech giant Syngenta owns the patent for Golden Rice. While it claims the seeds will be available royalty free, legally Syngenta can change its position at any time. Golden Rice is a project of the International Rice Research Institute (“IRRI”), a nonprofit organization lead Dr. Gerard Barry, a twenty-year Monsanto veteran. Both Monsanto and GMO producer Syngenta contribute funding to IRRI. IRRI, supra note 16.


27 See Wright, supra note 23.

Jenny Marusiak, rights violations, pollution of waterways and the disruption of eco-systems. “
emissions from deforestation, land-use conflicts, loss of biodiversity, indigenous
See Harmon, supra note 17.
See Strom, supra note 31.
New Poll Finds Widespread Support for GMO Labeling as New Hampshire
House Committee Prepares to Vote on GMO Labeling Law, Food DEMOCRACY
Id.
Id.
Tarini Parti & Jenny Hopkinson, Monsanto, DuPont Pour Millions into
GMO Fight, POLITICO (Sept. 11, 2013), http://www.politico.com/story/2013/09/
monsanto-du Pont-pou r-millions-into-gmo-fight-96643.html.
critics-slam-obama-for-protecting-monsanto/

Endnotes: INDONESIA’S ROLE IN REALIZING THE GOALS OF ASEAN’S AGREEMENT ON TRANSBOUNDARY
HAZE POLLUTION

continued from page 45
(last visited Feb. 21, 2013). Haze also contributes to “greenhouse gas and haze
emissions from deforestation, land-use conflicts, loss of biodiversity, indigenous
rights violations, pollution of waterways and the disruption of eco-systems.”
Jenny Marusiak, Big Job ahead for Sustainable Palm Oil Group, eco-BUSINESS.
The U.S. Environmental Protection Agency (“EPA”) defines regional haze as “visibility impairment that is produced by a
multitude of sources and activities which emit fine particles and their precursors
and which are located across a broad geographic area.” Regional Haze Regulations,
51). Haze is further distinguished by the size of the particulate matter—PM2.5
is haze with particulates up to 2.5 microns wide, and PM10 is haze with partic-
ulates up to 10 microns wide. See Ahmad et al., supra. ASEAN is concerned
with monitoring PM10. Ahmad et al., supra.
See Ahmad et al., supra note 15; Alan Rogers, Haze – Brown Clouds,
Borneo Post (Nov. 4, 2012), http://www.theborneopost.com/2012/11/04/haze-
brown-clouds/ (explaining that low humidity means dry air which is stable and
characterized by no horizontal or vertical air movement).
See Ahmad et al., supra note 15; Rogers, supra note 16. On a clear day,
ground visibility can extend up to seven miles. Glossary: Visibility, WEATHER
gecotent=visibility (last visited Feb. 21, 2013).
See Rogers, supra note 16 (noting that the variability of air pollution
is affected by local meteorological conditions); Laura S. Henry et al., From
Smelter Fumes to Silk Road Winds: Exploring Legal Responses to Transbound-
ary Air Pollution over South Korea, 11 Wash. U. GLOBAL STUD. L. REV. 565,
584 n.96 (2012) (citing World Health ORG., THE HEALTH RISKS OF PARTICULATE
MATTER FROM LONG-RANGE TRANSBOUNDARY AIR POLLUTION 1, 11 (2006), avail-
able at http://www.euro.who.int/__data/assets/pdf_file/0006/78657/881899.
pdf).
See Regional Haze Regulations, supra note 15 (noting that visual impair-
ment occurs because haze covers a broad geographical area); Merrill, supra
note 10, at 970 (discussing the drifting nature of transboundary pollution).
See Merrill, supra note 10, at 968 (defining transboundary air pollution).
See Tom Ginsburg & Gregory Shaffer, The Empirical Turn in International
Id. (noting the varied effects of environmental regulation on states involved
in the regulatory solution).
Id. For an example dealing with ozone, see Jonathan Remy Nash & Rich-
ard L. Revesz, Markets and Geography: Designing Marketable Permit Schemes
to Control Local and Regional Pollutants, 28 ECOLOGY L.Q. 569, 599–601
See Ginsburg & Shaffer, supra note 21, at 38 (explaining the growth of
international environmental law and its extremely technical complexities).
Ginsburg & Shaffer, supra note 21, at 38.
See Merrill, supra note 10, at 970 (noting that transboundary pollution can
be partial, unidirectional, or reciprocal, but usually has an impact on both the
source and affected states).
Merrill, supra note 10, at 970 (noting a source state will consider the cost
of pollution incurred by its residents before adopting regulation).
See Merrill, supra note 10, at 971 (referring to this underground burn as smoldering fires,
which have been reported in boreal, temperate, and tropical forests). For
a domestic example, see Willie Drye, Vast Peat Fire May Burn for Months

References
29 Id.
32 See Harmon, supra note 17.
33 Strom, supra note 31.
35 Id.
36 Id.