



CENTER FOR FOOD SAFETY

April 11, 2017

Chair Senator Michael Dembrow
Senate Committee on Environment and Natural Resources
Re: Hearing on SB1037

Chair Dembrow and Members of the Committee:

We urge you to support SB1037 and to send it to the full Senate with a “do pass” recommendation. Please accept this testimony on behalf of the Center for Food Safety (CFS). CFS’s mission is to empower people, support farmers, and protect the earth from the harmful impacts of industrial agriculture. Through groundbreaking legal, scientific, and grassroots action, CFS protects and promotes the public’s right to safe food and the environment. CFS has more than 830,000 consumer and farmer supporters across the country, and tens of thousands in Oregon.

Background and Credentials

As a central part of that mission, CFS advocates for the federal, state, and local regulation of genetically engineered (GE) crops in a way that addresses their economic and environmental impacts, such as transgenic contamination of conventional or organic crops or the environment, the increased use of pesticides, and the evolution of pesticide-resistant weeds. CFS has worked on the issue of genetically engineered crops oversight for nearly two decades, at all levels of governance. For example and to that end, we have worked with dozens of states in crafting bills pertaining to genetically engineered crops and foods, and their oversight. CFS has a major program area specific to GE crops, and numerous staff members—scientific, policy, campaign, and legal—whose daily work encompasses the topic. CFS staff are recognized experts in the field, intimately familiar with the issue of GE crops, the inadequacy of their oversight, their health risks, and their adverse environmental and economic impacts. When necessary, we engage in public interest litigation on behalf of farmers; many of these cases center on the issue of transgenic contamination.

As we have done across the country, here in Oregon, our Pacific Northwest office has worked with local leaders on crafting of legislation addressing the adverse impacts of industrial agriculture at both the state and local level. For example, we supported the successful ordinance creating a GE-free zone in Jackson County, as we have similar ordinances in numerous other counties in other states. Subsequently, we assisted in the successful defense of the Jackson County ordinance as Defendant-Intervenors and counsel

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in *Schultz v. Jackson County*, No. 1:14-cv-01975, 2015 WL 3448069 (D. Or. May 29, 2015). The *Schultz* case, which has now settled, established that local Oregon jurisdictions can regulate GE crops without violating any existing Oregon law, such as the “right to farm” law. Thus the only block to all Oregon jurisdictions having the same rights as Jackson County is the 2013 rider, SB 863, which exempted only Jackson.

TESTIMONY ON SB1037

SB1037 is a crucial, non-partisan bill that deserves your support. GE-free zones like Jackson County are important seed sanctuaries that not only protect traditional and organic farmers and food producers from the very real threat of transgenic contamination, but GE-free zones can also greatly benefit local businesses and economies. Currently, only traditional and organic farmers bear the burden of GE contamination, either through the expensive and often unsuccessful attempts to fence it out, or by foregoing otherwise lucrative opportunities. In 2013, the people of Jackson and Josephine Counties took matters into their own hands to protect their farmers and local economies by choosing to prevent GE contamination. The legislature responded by taking power from the counties to regulate GE seeds and crops and placing it exclusively with the State, with the promise that the state would take necessary action to address the harms faced by many of Oregon’s farmers due to GE crops. Four years later, nothing has happened. With no state action on the horizon, and poor federal oversight of GE crops that does not address contamination at all, now is the time to return the power to counties and local governments in Oregon to protect farmers and local businesses from the negative impacts of GE crops. We urge this Committee to move SB1037 forward to untie the hands of local governments in Oregon to choose their own agricultural and economic futures.

Economic Impacts of Genetically Engineered Crops

GE crops have significant impacts on our agricultural economy, public health, and the environment – they are not benign. First and foremost of these is transgenic contamination: the unintended, undesired presence of transgenic material in organic or traditional crops, as well as wild plants. Transgenic contamination happens through, among other means, wind- or insect-mediated cross-pollination, seed mixing, faulty or negligent containment, and weather events.¹ Government audits, farmers, and scientific researchers have repeatedly documented transgenic contamination in a variety of crops including but not limited to alfalfa, canola, corn, rice, and beets. Indeed, every GE crop released into the environment has caused contamination of its non-GE or wild counterpart.²

¹ See, e.g., *Geertson Seed Farms v. Johanns*, No. C 06–01075 CRB, 2007 WL 518624, at *4 (N.D. Cal. Feb. 13, 2007) (“[C]ontamination can occur through pollination of non-genetically engineered plants by genetically engineered plants or by the mixing of genetically engineered seed with natural, or non-genetically engineered seed.”). Michelle Marvier & Rene C. Van Acker, *Can Crop Transgenes Be Kept on a Leash?*, 3 *Frontiers Ecology & Env’t* 99, 100-01 (2005), available at https://ic.ucsc.edu/~cshennan/envs133/readings/gm_crops_and_release_risk.pdf.

² See e.g. CFS, U.S. CONTAMINATION EPISODES CONCERNING GENETICALLY ENGINEERED CROPS (July 2015), attached as Exhibit A.

Harm from transgenic contamination manifests several ways. As the U.S. Supreme Court has explained, this “injury has an environmental as well as an economic component.” *Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139, 155 (2010). The agronomic injury causes significant economic damage to farmers: Over the past decade, transgenic contamination has cost U.S. farmers literally billions of dollars in rejected sales, lost exports, and closed agricultural markets,³ with new episodes cropping up regularly.⁴ GE contamination has significant economic effects. A single incident of GE contamination can—and has—cost farmers hundreds of millions of dollars.⁵ These contamination episodes continue: there is currently a four billion dollar lawsuit over contamination of U.S. corn exports stemming from a new genetically engineered corn produced by Syngenta.⁶

Contamination can cause organic growers to lose their customers and markets, since organic consumers demand their products be free of transgenic content; as polls show, it is one of the major reasons they buy organic, to avoid GE foods.

Additionally, contamination can be irreparable, because once it occurs, it becomes difficult or impossible to contain, resulting in a fundamental loss of choice for farmers and consumers. *See, e.g., Geertson Seed Farms*, 2007 WL 518624, at *9 (“For those farmers who choose to grow non-genetically engineered alfalfa, the possibility that their crops will be infected with the engineered gene is tantamount to the elimination of all alfalfa; they cannot grow their chosen crop.”); *Ctr. for Food Safety v. Vilsack*, No. C 08-00484 JSW, 2009 WL 3047227, at *8 (N.D. Cal. Sept. 21, 2009). Unlike chemical pollution that dissipates over time, transgenic contamination is a living form of biological pollution that can instead spread over time and space. *Geertson Seed Farms*, 2007 WL 518624, at *5 (“Once the gene transmission occurs and a farmer’s seed crop is contaminated with the Roundup Ready gene, there is no way for the farmer to remove the gene from the crop or control its further spread.”). And once contamination occurs, evidence shows this contamination can persist for many years.⁷

³ Robert Patrick, *Genetic rice lawsuit in St. Louis settled for \$750 million*, St. Louis Dispatch (Jul. 2, 2011), http://www.stltoday.com/news/local/metro/genetic-rice-lawsuit-in-st-louis-settled-for-million/article_38270243-c82f-5682-ba3b-8f8e24b85a92.html; K.L. Hewlett, *The Economic Impacts of GM Contamination Incidents on the Organic Sector* (2008), available at <http://goo.gl/jf2F5E>; Stuart Smyth et al., *Liabilities & Economics of Transgenic Crops*, 20 *Nature Biotech.* 537, 537 (2002), available at <http://goo.gl/KeDRPX>; Carey Gillam, *U.S. Organic Food Industry Fears GMO Contamination*, Reuters, Mar. 12, 2008, <http://goo.gl/nkC52J>.

⁴ Tom Polansek, *China rejections of GMO U.S. corn cost up to \$2.9 billion*, Reuters, Apr. 16, 2014, <http://goo.gl/5Nc6Ub>.

⁵ *See, e.g., In re Genetically Modified Rice Litig.*, 666 F. Supp. 2d 1004 (E.D. Mo. 2009); *In re Genetically Modified Rice Litig.*, No. 4:06-MD-1811 CDP, 2009 WL 4801399 (E.D. Mo. Dec. 9, 2009).

⁶ *In Re: Syngenta AG MIR162 Corn Litigation*, No. 2:14-md-2591-JWL (D. Kansas), <http://www.syngentacornlitigation.com/news/>.

⁷ G. Squire et al., *The Potential for Oilseed Rape Feral (Volunteer) Weeds to Cause Impurities in Later Oilseed Rape Crops*, Dep’t for Env’t, Food and Rural Affairs (August 2003) (documenting canola contamination lasting 16 years).

GE contamination can threaten our food supply, as evidenced by the recently discovered contamination of non-GMO white corn fields by Syngenta's Enogen GE corn, a potential "trainwreck."⁸ Enogen GE corn is engineered for making corn ethanol, with an enzyme that converts starches in corn to sugars. However, if this corn contaminates food corn, its enzymes would break down starches and ruin the corn for processing. *Id.* Contamination of food corn by this GE corn may have already caused problems with masa flour in California; there have been reports of bad masa flour that caused tamales to be gooey and fall apart, even making some people sick. *Id.* The Enogen contamination of food corn harkens back to the Starlink disaster, when the GE corn, approved only as animal feed, contaminated human food supplies, including 300 food products, leading to a multi-million dollar food recall and multiple lawsuits in the early 2000s. *Id.*

Oregon is no stranger to these harmful economic effects. In 2013, the discovery of experimental, unapproved GE wheat in an eastern Oregon field cost Oregon farmers access to vital export markets and caused untold financial losses. In 2010, USDA re-discovered that GE bentgrass that escaped from field trials conducted near Madras seven or eight years prior, and had established itself in the wilds of eastern Oregon, at the Crooked River National Grassland.⁹ This GE bentgrass was never commercially approved, but was tested here despite the protests of many Oregon grass seed farmers. It has now proven itself to be nearly impossible to eradicate. Oregon continues the Sisyphean task of trying to find and destroy feral populations of Monsanto's Roundup Ready GE bentgrass that escaped field trials there over a decade ago. *Int'l Ctr. for Tech. Assessment v. Johanns*, 473 F. Supp. 2d 9, 13, 29 (D.D.C. 2007).

Even the risk of transgenic contamination alone causes significant economic harm to farmers: lost opportunity costs by forgoing planting otherwise lucrative crops because of contamination risk; DNA testing costs; and precautions, such as buffer zones or other planting efforts to try and minimize contamination likelihood. These contamination avoidance burdens currently all fall on the traditional farmer to try and "fence out" such harm from damaging their property interests. Such a standard is contrary to hundreds of years of property law, which teaches that the entity causing the property harm—not those being harmed from it—should have such burdens to prevent harm to his or her neighbor.

No Federal Protection from Economic Harms of GE Crops

Unfortunately, the U.S. Department of Agriculture currently does not protect traditional farmers from transgenic contamination. USDA does not consider GE contamination to be a "plant pest risk" and therefore disavows any power under the Plant Protection Act to prevent commercialization of GE crops on that basis. USDA has also failed to stop contamination from field trials of unapproved varieties of GE crops. Oregon's own GE bentgrass contamination incidents serve as a telling reminder of how USDA has failed to

⁸ Ken Roseboro, *GMO-ethanol corn contamination raises concerns about another "StarLink" disaster*, Huffington Post (April 5, 2017), http://www.huffingtonpost.com/entry/gmo-ethanol-corn-contamination-raises-concerns-about_us_58e52857e4b0ee31ab9533dd.

⁹ Jay R. Reichman et al., *Establishment of Transgenic Herbicide-Resistant Creeping Bentgrass (Agrostis solonifera L.) in Nonagronomic Habitats*, 15 Mol. Ecol. 4243, 4245 (2006), <https://goo.gl/HdR4vQ>.

effectively regulate in this area.¹⁰ But more generally, USDA's oversight has been found severely lacking repeatedly by government reports and courts. USDA's oversight of experimental field trials of GE crops has repeatedly failed, as evinced by the local GE bentgrass and GE wheat examples, among others. For example, 2008 Government Accountability Office (GAO) study analyzed several major transgenic contamination incidences stemming from experimental field trials in from the past decade, noting the billions of dollars in economic damages associated with them.¹¹ The GAO concluded that "the ease with which genetic material from crops can be spread makes future releases likely."¹² When it comes to commercial GE crops, USDA rejects any oversight whatsoever, refusing to continue to monitor or restrict them in any way to help prevent contamination of traditional farmers.

Environmental and Agronomic Harms of GE Crops

In addition to transgenic contamination, GE crops have significant other environmental and agronomic impacts. GE crops, which are overwhelmingly engineered to do one thing only—be resistant to herbicides—have also massively increased overall herbicide use in U.S. agriculture, by hundreds of millions of pounds. The vast majority of GE crops are engineered to withstand what would otherwise be fatal applications of the herbicide glyphosate, commonly known as "Roundup." In the mid-1990s, Monsanto started genetically engineering "Roundup Ready" crops, leading to "an exponential increase in the

¹⁰ Sean Ellis, *Farmers worry who will control escaped genetically engineered bentgrass*, Capital Press (June 23, 2016), <http://www.capitalpress.com/Oregon/20160623/farmers-worry-who-will-control-escaped-genetically-engineered-bentgrass>; George Kimbrell, *Meet Monsanto's Dangerous Bioengineered Plant That Never Dies*, Alternet (Dec. 17, 2016), <http://www.alternet.org/environment/sordid-tale-monsantos-genetically-engineered-bentgrass-dangerous-grass-never-dies>; Mateusz Perkowski, *ODA opposes deregulation of biotech bentgrass*, Capital Press (Mar. 30, 2016) <http://www.capitalpress.com/Oregon/20160329/oda-opposes-deregulation-of-biotech-bentgrass>; Sean Ellis, *Farmers challenge USDA's GMO bentgrass plan*, Capital Press (Mar. 2, 2016) <http://www.capitalpress.com/Oregon/20160302/farmers-challenge-usdas-gmo-bentgrass-plan>.

¹¹ U.S. GOV'T ACCOUNTABILITY OFFICE, GENETICALLY ENGINEERED CROPS: AGENCIES ARE PROPOSING CHANGES TO IMPROVE OVERSIGHT, BUT COULD TAKE ADDITIONAL STEPS TO ENHANCE COORDINATION AND MONITORING (Nov. 2008) available at <http://www.gao.gov/new.items/d0960.pdf> at 44 ("After two decades of experience with field trials, it is widely acknowledged that unauthorized releases of regulated material from field trial sites are likely to occur in the future"). The GAO Report documented six events of GE crops contaminating the food and feed supply, including the 2000 StarLink Corn incident, causing between \$26 to \$288 million in economic damages; the 2002 Prodigene Corn contamination incident where a variety of GE corn designed to create a pig vaccine protein contaminated non-GE corn; the 2004 Syngenta Bt Corn incident where a pesticidal Bt corn determined not to suitable for commercialization was illegally released onto 37,000 acres; the 2006 Event 32 Corn incident where 72,000 acres were planted to 3 lines of corn contaminated with regulated GE pesticidal corn; and the 2006 Liberty Link Rice incident where GE rice contaminated export rice stocks causing economic damages of over \$1 billion. *Id.* at 3.

¹² *Id.* at 3.

use of glyphosate-based herbicides around the world.”¹³ “Roundup Ready” crop systems have made glyphosate the most heavily-used pesticide in the history of agriculture. In 2007, American farmers applied 180-185 million pounds of the chemical.¹⁴ Overall, glyphosate use in American agriculture jumped tenfold from 1995 to 2007.¹⁵ Over the 16 years from 1996 to 2012, genetically engineered crops increased herbicide use by at least 527 million pounds.¹⁶

The increased herbicide use associated with GE crops threatens Oregon’s watersheds and creates health risks for farm workers, community members, and wildlife. GE crops have also reduced biodiversity through the transgenic contamination of local varieties and native flora. They have also spawned an epidemic of herbicide-resistant superweeds that already cover over 60 million acres of U.S. farmland,¹⁷ costing U.S. farmers millions of extra dollars in weed control.¹⁸ Increased use of glyphosate will worsen the glyphosate-resistant weed epidemic. The attempted eradication of superweeds will only lead to more herbicide use, causing further damage to our agricultural areas and to our drinking water, and posing health risks to farm workers, wildlife, and consumers. Indeed, older and more toxic herbicides are already being touted as the solution to the rise of superweeds. Monsanto and Dow have already genetically engineered corn, soy, and cotton with “stacked” traits, so they are resistant to both glyphosate *and* either 2,4-D or dicamba.¹⁹ 2,4-D is one of the ingredients in the infamous “Agent Orange” defoliant manufactured by Monsanto and used during the Vietnam War. EPA has now approved the 2,4-D and glyphosate combo for GE corn and soy, and dicamba for GE cotton and soy, despite public outcry and concern over the impacts of massive increases in use of these older and more dangerous herbicides.²⁰

¹³ Relyea, R.A., 2011. “Amphibians Are Not Ready for Roundup”, in J.E. Elliott et al. (eds.), *Wildlife Ecotoxicology: Forensic Approaches*, pp. 267 – 300, at 270 and Figure 9.1, *available at* <https://www.biology.pitt.edu/sites/default/files/facilities-images/Relyea%20286.pdf>.

¹⁴ U.S. EPA, Biological and Economic Analysis Div., Office of Pesticide Programs, *Pesticide Industry Sales and Usage: 2006 and 2007 Market Estimates*, tbl. 3.6 (2011). Total 2007 glyphosate usage in the United States of 198-208 million lbs. is more than twice as high as the second-leading pesticide, and exceeds even the peak U.S. production of DDT. Nat’l Pesticide Info. Ctr., Oregon State Univ., DDT Technical Fact Sheet, <http://npic.orst.edu/factsheets/ddttech.pdf>. Peak DDT production in the United States was 188 million lbs. in 1963. *Id.*

¹⁵ Robert Service, *A Growing Threat Down on the Farm*, 316 *Sci.* 1114, 1114-17 (May 25, 2007).

¹⁶ Benbrook, C., *Impacts of genetically engineered crops on pesticide use in the U.S. – the first sixteen years*, *Env’l Sci. Europe* 2012 24:24 (2012), available at <https://goo.gl/QnmCn0>.

¹⁷ *Id.*

¹⁸ Service, *A growing threat down on the farm*, *Science* 316: 1114-1117 (2007); William Neuman & Andrew Pollack, *Farmers Cope With Roundup-Resistant Weeds*, *NY Times* (May 3, 2010), <http://www.nytimes.com/2010/05/04/business/energy-environment/04weed.html?pagewanted=all>; and see <http://weeds-science.org/summary/moa.aspx?MOAID=12>.

¹⁹ S. Kilman, *Superweed outbreak triggers arms race*, *Wall Street Journal*, (June 4, 2010) <http://www.wsj.com/articles/SB10001424052748704025304575284390777746822>.

²⁰ CFS, *After Cursory Review, EPA Proposes Dramatic Expansion of Toxic Pesticide Blend Enlist Duo*, (Nov. 1, 2016), <http://www.centerforfoodsafety.org/press-releases/4559/after-cursory-review-epa-proposes-dramatic-expansion-of-toxic-pesticide-blend-enlist-duo>; CFS,

Illegal use of dicamba on the GE crops has already caused massive damage to row crops and orchards.²¹

Time For Action To Restore Oregon Farmers' Rights

In the absence of leadership from any of the federal agencies responsible for GE crop oversight (including EPA, FDA, or USDA), the responsibility of addressing the adverse impacts of GE crops has fallen to states and counties, and they have rightly filled the breach. Among other things, more and more counties across the United States are deciding that what is best for their local agriculture is not the currently-dominant paradigm of industrialize food production created and owned by chemical giants such as Monsanto and Syngenta. Rather, they seek to choose a different future for our food and farmers, one which is environmentally as well as economically sound, by creating and protecting new GE-free agricultural markets.

The State of Oregon has similarly failed to protect its farmers from contamination, and instead blocked all counties from so acting, except Jackson. In the absence of responsible state regulation, local communities *must* be allowed to address the issues caused by GE crops, in order to protect their local food systems, farmers, and economies, and to decide for themselves what is best for their region, and its economic and agricultural future. Counties do not need special agronomic or scientific expertise to protect farmers from the harm of transgenic contamination, if they so choose; nor do protective measures need to be resource intensive. The Committee must remember that SB1037 *does not create any new regulations* or ordinances, but it does untie the hands of local farmers and the public to decide if restricting genetically engineered crops would benefit their local economy. It is Oregonians who should make this decision for themselves, not multinational chemical corporations.

For these reasons, we urge you to support SB1037 and restore to all Oregon counties the right to decide for themselves what type of agriculture they wish to have. Thank you for hearing SB1037 and please send this important bill to the full Senate with a “do pass” recommendation. I’m happy to answer any questions the Committee may have or otherwise be a resource as might be helpful.

Sincerely,



Amy van Saun
Attorney

Public Interest Groups, Farmers File Lawsuit Challenging Monsanto’s Toxic Pesticides (Jan. 23, 2017), <http://www.centerforfoodsafety.org/press-releases/4744/public-interest-groups-farmers-file-lawsuit-challenging-monsantos-toxic-pesticides>.

²¹ Jack Kaskey & Lydia Mulvany, *Monsanto Seeds Unleash Unintended Consequences Across U.S. Farms*, Bloomberg (Sept. 1, 2016); Lorraine Chow, *Missouri's Largest Peach Farmer Sues Monsanto for Losses From Illegal Herbicide Use*, EcoWatch (Dec. 8, 2016) <http://www.ecowatch.com/missouri-peach-farm-sues-monsanto-dicamba-drift-2133507960.html>.

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U.S. CONTAMINATION EPISODES CONCERNING GENETICALLY ENGINEERED CROPS

The following are just a few of the dozens of episodes in which pollen or seeds from genetically engineered (GE) crops have contaminated conventional crops, often causing seed or product recalls, and other problems for farmers and consumers. The regulatory mechanisms needed to prevent contamination are either missing or severely inadequate, jeopardizing export markets, farmer livelihoods, and consumer confidence.

- 2014** According to the National Grain and Feed Association, corn growers in the U.S. lost from \$1 to 3 billion in revenue last year after China rejected nearly 1.5 million metric tons of U.S. corn due to contamination with a GE variety, developed by Syngenta, that China has not approved for import. China, the 3rd largest U.S. corn buyer, began importing corn from America's chief corn export competitor, Brazil, to make up the shortfall, an example of how lax U.S. policies on GE crops harms American agriculture.
- 2014** The U.S. Department of Agriculture (USDA) announced in September 2014 that unapproved GE wheat was found growing at a university research center in Huntley, Montana, 11 years after being field tested by seed giant Monsanto.
- 2013** An export shipment of alfalfa from Washington State was rejected after the shipment tested positive for contamination with GE herbicide-resistant alfalfa. The U.S. is the primary alfalfa supplier to Japan, Saudi Arabia and other countries that prohibit and/or require labeling of genetically engineered foods. In 2012, the alfalfa market was valued at \$1.25 billion and has been growing steadily.
- 2013** The USDA announced that an unapproved GE wheat variety developed by Monsanto was found contaminating an Oregon farmer's field. Following significant disruptions to the wheat export market, several class action lawsuits were filed against Monsanto on behalf of wheat farmers.
- 2009** GE "Triffid" flax was approved in 1998 in Canada and the United States. Canadian flax growers feared that transgenic contamination would ruin export markets, and so had it banned in 2001. Eight years later, in 2009, their fears were realized. GE flax was detected in food items in 30 countries in Europe and Asia. Europe rejected contaminated flax shipments, flax prices plummeted and flax growers suffered considerable harm.
- 2008** U.S. government agencies announced that the Monsanto Company had notified them that an unauthorized GE cotton variety had been harvested along with 54 acres of commercial cotton.

- 2006** Bayer CropScience and Riceland Foods reported widespread contamination of commercial long-grain rice supplies, including exports, with Bayer's unapproved, herbicide-resistant GE rice. Japan immediately suspended imports of U.S. long-grain rice and ordered testing of processed rice products. Many European markets also closed. Because Bayer stopped field-testing the rice in 2001, it was likely in the rice seed supply, food chain and/or the environment for 5 years or more prior to its discovery. In a class action lawsuit, 11,000 rice farmers won a \$750 million settlement against Bayer for losses they incurred due to lower rice prices.
- 2006** EPA scientists announced that golf course grass (bentgrass) genetically engineered to withstand Monsanto's Roundup herbicide escaped the test plot via pollen flow or seed dispersal to form viable plants up to 2.4 miles away. Bentgrass can cross-pollinate with many different grasses, and 175 permits authorizing cultivation of over 4,400 acres of GE bentgrass have been issued since 1993. The Oregon Department of Agriculture discovered previously unknown populations of the GE bentgrass still thriving in the wild in 2011 and is still working to try to eradicate it.
- 2004** Biotech giant Syngenta revealed to U.S. authorities that it had mistakenly distributed an unapproved GE corn variety, Bt10, to U.S. farmers from 2001 to 2004, enough Bt10 to plant 37,000 acres and produce 165,000 tons. The episode resulted in numerous rejected corn shipments to Japan and the EU. Bt10 remains unapproved by US regulatory authorities.
- 2004** In the longest "gene flow" incident on record, genetically engineered bentgrass (see above) was found by EPA scientists to have cross-pollinated conventional grass up to 13 miles away in Oregon. Bentgrass can displace natural grass species in forest and native prairie settings. The U.S. Fish and Wildlife Service found that approval of GE herbicide-resistant bentgrass would likely jeopardize several endangered plant species. Herbicide-resistant bentgrass weeds created by such cross-pollination could also endanger the grass seed industry.
- 2004** GE papaya trees were discovered to have contaminated both organic and conventional, non-GE papaya on a wide scale. GE papayas have been grown widely in Hawaii since 1998. Just six years later, fifty percent of Big Island papaya seed samples showed GE contamination, including those taken from organic farms and people's gardens.
- 2003** UC Davis researchers discovered that, for seven years, they had been mistakenly distributing for research purposes GE tomato seed in place of a conventional variety.
- 2003** Tests showed that GE crops had contaminated wheat grown in the US, even though GE wheat was not approved for commercial use. Grain industry experts warned that approving GE wheat could mean the end of US exports to Europe and Asia.
- 2002** Experimental corn genetically engineered as a "biofactory" for drug production, produced by ProdiGene, Inc. of Texas, contaminated soybeans in Nebraska and potentially corn in Iowa. 500,000 bushels of contaminated soybeans worth \$3 million were quarantined at the elevator and destroyed, while 155 acres of corn were uprooted.
- 2001** Scientists were surprised to discover that GE corn has cross-pollinated with wild maize in Oaxaca, Mexico despite the country's moratorium on GE crop cultivation, in effect since 1998. It is thought that GE corn seed in food aid shipments from the U.S. was saved and planted.
- 2001** Monsanto was forced to recall thousands of bags of canola seed contaminated with a GE variety not approved for sale to Canada's major export markets. Incineration was planned for over 10,000 acres of fields already planted with the unapproved crop.
- 2000** Over 300 food products were recalled due to contamination by a GE corn (StarLink, produced by Aventis CropScience), not approved for human food due to concerns that it might trigger hazardous food allergies. Exports of corn to Japan decreased by 44% in one year. Depressed corn prices triggered huge losses for corn farmers. StarLink contamination was still being discovered in US corn shipments three years later.