

risky business

FINANCIAL RISKS THAT GENETICALLY
ENGINEERED FOODS POSE TO KRAFT
FOODS, INC. AND SHAREHOLDERS

National Association of State PIRGs
As You Sow Foundation

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EXECUTIVE SUMMARY

Genetically engineered foods have the potential for detrimental impacts on public health and the environment, which in turn pose significant financial risks to food companies and investors. Strong regulatory oversight of these crops is essential to prevent health impacts for which food companies could be liable. However, concerns about the adequacy of these regulations have been raised from sources inside and outside of these agencies, including from food companies themselves. In order to clearly illustrate the financial risks of genetically engineered foods, this report will focus on the particular financial risks that genetically engineered ingredients pose to Kraft Foods, the largest food company in the country.

The StarLink contamination of the food supply demonstrated the financial risk that genetically engineered foods can create and the inadequacies of current regulations to protect food companies from liability. StarLink corn is a variety of genetically engineered corn not approved for human consumption because of risk of allergic reaction. In Fall 2000 StarLink was found in Kraft's Taco Bell taco shells and then in hundreds of other products in the food supply, spurring recalls, lawsuits, lost sales, and consumer rejection that is estimated to have cost the food industry a billion dollars.

StarLink is just one of many unapproved varieties of genetically engineered crops with the potential to contaminate the food supply and lead to financial risk to Kraft. Between 1987 and 2000, for instance, there have been nearly 30,000 reported open-air plantings of experimental genetically engineered crops across the United States. Unfortunately, many other varieties are approved for planting and consumption despite their potential for harming human health or the environment. Contamination of Kraft products by approved or unapproved crops could create significant financial liabilities for companies if they did not act to prevent contamination.

This report details the financial risks that genetically engineered foods pose to food companies, with Kraft Foods as the primary example. These risks include:

- Product Liability
- Biopharm Contamination
- Consumer Rejection of Kraft Products

- Loss of Competitive Advantage
- Damage to Reputation
- Insurance Industry Concerns
- Shareholder and Analyst Concerns
- Risk of Sudden Regulatory Changes

In response to these financial risks and to the growing consumer demand for non-genetically engineered foods, many food companies in Europe have stopped using genetically engineered foods, including Kraft Foods in Europe. Many U.S. food companies have also decided not to use genetically engineered ingredients in their products, including Gerber, Heinz, McDonald's, Frito-Lay, and supermarket chains Whole Foods, Wild Oats, and Trader Joe's. We found that these companies did not report financial difficulties as a result of this shift, and in most cases sales increased in the years following the switch.

In addition, genetically engineered foods offer no marketable benefit to food companies. The potential for Kraft and other food companies to experience future financial risk is great if they continue to use genetically engineered ingredients, yet these foods offer no marketable benefits. Studies have even documented that genetically engineered crops may cost more to produce than their non-genetically engineered counterparts. Without clear benefits, the financial risks that food companies bear by continuing to use genetically engineered ingredients are difficult to rationalize.

Recommendations

Kraft faces unnecessary financial risk by continuing to use genetically engineered ingredients. The potential for Kraft and other food companies to experience future financial risk is great if they continue to use genetically engineered ingredients. Oversight by government regulatory agencies is not adequate to protect Kraft from these risks. To reduce financial risk from genetically engineered ingredients, we recommend that Kraft take the following steps:

1. Phase out genetically engineered ingredients.
2. Disclose to shareholders all financial risks posed by genetically engineered ingredients.

INTRODUCTION

The debate about the safety and regulation of genetically engineered foods has heated up over recent years among scientists, regulators, industry executives, and financial analysts. The StarLink contamination of the food supply demonstrated the unpredictability of genetically engineered foods and the financial risks that these foods and crops pose, especially to food companies. As the largest food company in the United States, Kraft Foods may experience the most financial risk of any food company by continuing to use genetically engineered ingredients. This paper looks at the financial risks that genetically engineered foods pose to food companies, using Kraft Foods as the primary example.

Genetic engineering is the process by which scientists combine the genes of dis-

similar and unrelated species or manipulate the genes of existing species to change their characteristics, permanently altering their genetic codes and creating novel organisms. Genetic engineering differs from traditional breeding and allows biotechnology corporations to combine organisms that would never be able to combine naturally, such as tomatoes and fish. Because of the imprecise nature of gene insertion, these crops and foods may pose significant risk to human health and the environment and have raised concern among scientists and public health experts. (See Appendix A)

The primary regulatory agencies responsible for overseeing the safety of genetically engineered foods are the Food and Drug Administration (FDA), the Environmental Protection Agency (EPA), and the U.S.

Kraft Foods and StarLink

A clear example of the financial risks posed by genetically engineered foods is the contamination of the food supply with StarLink corn. In September 2000, StarLink corn was discovered in Kraft's Taco Bell taco shells and ultimately found in over 300 products, leading to a series of events that brought genetically engineered foods to national attention. As a result, Kraft's name became inextricably connected to the StarLink debacle and the controversy surrounding genetically engineered foods.

StarLink is a variety of corn genetically engineered with the bacteria *Bacillus thuringiensis* (Bt) to produce a protein that is toxic to insect pests. Aventis CropScience USA Holding Inc. genetically engineered StarLink to produce the protein pesticide, Cry9C, and had failed to obtain EPA's approval for human consumption because of allergenicity concerns. Nevertheless, StarLink was found in a number of corn products (tostadas, taco shells, tortillas, and chips), triggering a recall of more than 300 contaminated products.⁴

As a result of the StarLink contamination, Kraft recalled more than 636,000 cases of Taco Bell taco shells. With 12 boxes per case and the suggested retail price of \$1.32 per box, the recall cost Kraft an estimated \$10 million just in lost sales from those products, not including other costs involved in the recall process.⁵ This amount is equal to one fifth of Kraft's annual sales of taco shell products, which total about \$50 million each year.⁶ Taco Bell restaurant was also affected by lost business from the contamination, even though restaurant tacos were never found to contain StarLink. The suppliers of its taco shells agreed to give \$60 million to Taco Bell restaurant franchisees to partially offset lost business resulting from the confusion over its taco products.⁷ Taco Bell's same store sales growth fell 5% in 2000.⁸

The StarLink contamination is estimated to have cost the food industry over one billion dollars in recall expenses, lost sales, liability lawsuits, and decreased consumer confidence. The discovery of StarLink in the food supply heightened concern about the risks of genetically engineered crops among consumers, farmers, investors, and financial analysts. The discovery also raised public awareness among Americans about the existence of genetically engineered ingredients in our foods and skepticism about both the safety of this technology and the government agencies responsible for regulating it.

Department of Agriculture (USDA). Strong regulatory oversight of these crops is essential to prevent health and environmental risks for which food companies could be liable. However, concerns about the adequacy of these regulations have been raised from sources inside and outside of these agencies, especially regarding the fact that the FDA does not do safety testing of genetically engineered foods. A lawsuit filed against the FDA demanding adequate safety testing and mandatory labeling of genetically engineered foods forced the disclosure of documents that painted a picture of an agency beset by internal criticism regarding the safety of ge-

netically engineered foods and the political pressure to fast track their introduction.¹ (See Appendix B)

The first significant commercial planting of genetically engineered crops took place in 1996, and by 2000 70 percent of processed foods in the U.S. contained engineered ingredients, according to the Grocery Manufacturers of America.² Mainly just three crops—soy, corn, and canola—account for genetically engineered ingredients found in most foods.³

Kraft's Current Use of Genetically Engineered Ingredients

Kraft continues to use genetically engineered ingredients in its products in the U.S. Independent tests conducted in February 2002 revealed that 7 of 10 Kraft products tested contained genetically engineered ingredients, including several well-known brands such as Taco Bell taco shells, Boca burgers, Lunchables meals, and Blueberry Morning cereal (table 1).⁹ Since Kraft products can be found in more than 99 percent of U.S. households, Kraft is likely one of the largest distributors of genetically engineered foods in the nation and quite possibly in the world.

Table 1. Kraft Products Testing Positive for Genetically Engineered Ingredients in February 2002¹⁰

Kraft Product	Tested Positive For GE Content
Taco Bell taco shells	Corn
Lunchables nacho corn chips	Corn
Stovetop cornbread stuffing	Corn
Blueberry Morning cereal	Corn
Snackwell's snack crackers	Corn
Tombstone frozen pizza	Corn
Boca soy burgers	Soy

FINANCIAL RISKS TO KRAFT

1

Product Liability

If genetically engineered foods are found to cause harm to health and Kraft continues to use genetically engineered ingredients in its foods, Kraft could be liable for harm caused by the genetically engineered ingredients in its foods.

After the StarLink contamination, a series of lawsuits were filed across the country against Kraft, Aventis, Kellogg Co., Azteca Foods Inc., Mission Foods Co., and Garst Seed Co. These suits were filed on the behalf of consumers who unknowingly ate foods containing StarLink corn and alleged that the defendants produced, advertised, marketed, and sold millions of pounds of food products containing trace amounts of StarLink corn, leading millions of consumers to purchase and ingest these tainted food products.¹¹ The plaintiffs sought to recover property damage, re fund, loss of value, and other claims for economic damages from the StarLink contamination.¹² These lawsuits were consolidated into one class-action lawsuit that settled in March 2002 for \$9 million and Aventis agreed to pay the entire settlement. The lawsuit did not cover personal injury claims by individuals who suffered adverse reactions possibly linked to StarLink, and future evidence of StarLink's connection to these illnesses could lead to other, more costly settlements.

Promar International, a global consultancy firm for the agri-business, food, and pharmaceutical industries, completed an internal industry study in November 2000 entitled, *Jurassic Foods? The food industry in a post-StarLink world*,¹³ for clients such as Kellogg, ConAgra, Unilever, and Aventis. The study predicted up to “billions” of dollars in food industry losses from the StarLink controversy. Don Westfall, Vice President of Promar, said the aftermath of the StarLink corn scandal “is going to come back to haunt the regulators and the food industry.”¹⁴

Future Liability: Allergens

StarLink was unapproved for human consumption because it produced a protein (Cry9C) that exhibits properties common to allergens. Other approved varieties of Bt crops contain proteins similar to those in StarLink, and also may be allergenic. In fact, the Scientific Advisory Panel convened by the EPA in 2000 to evaluate the risks from Bt proteins, among other things, reviewed studies on the allergenicity of Bt crops, and reported that two of the studies,^{15 16} “suggest that Bt proteins could act as antigenic and allergenic sources.”¹⁷ EPA's scientific advisors then called for surveillance and allergy testing of high-risk groups, including children and farm workers, but these tests have not been done.

A report completed in 2000 by the FAO/WHO recommends that safety assessments of genetically engineered foods should include an assessment of the allergenicity of novel proteins.¹⁸ Such tests are not currently required of new genetically engineered foods.

FDA Does Not Protect Kraft from Liability

The current FDA approval process fails to fully protect food companies from liability. A report issued by American Re-Insurance Company, a member of the world's largest re-insurance company, Munich Re, states that, “The po-

“If our food products become adulterated or misbranded, we would need to **recall** those items and may experience **product liability** claims if consumers are injured as a result.”

-Kraft Foods Prospectus 2001

“Experience has shown that **FDA approval** does **not** always provide protection from **consumer litigation**.”

-American Re-Insurance Company

tential exists...for firms to incur product liability lawsuits in spite of the fact that they adhere to FDA regulation. Experience has shown that FDA approval does not always provide protection from consumer litigation.”¹⁹ Examples of this include the FDA approval of silicone breast implants, where bodily injury claims later resulted in settlements of \$3.2 billion. Another case in point is the FDA approval of the pesticide Dibromochloropropane, which was later alleged to cause sterility and banned by the EPA.

2

Biopharm Contamination

New varieties of genetically engineered crops pose further liability risks to Kraft. Scientists are now engineering food crops to produce industrial chemicals and prescription drugs, including plants that produce growth hormones, a blood clotter, an abortion-inducing chemical, and trypsin, an allergenic enzyme. These crops are being field tested in undisclosed locations across the U.S. and have the potential to contaminate food grains in nearby fields or during milling and grain transport. If crops containing pharmaceuticals or chemicals enter the food supply, they could have an unprecedented impact on public health and create significant liabilities for food companies, especially since these crops are not meant for or approved for human consumption.



Biopharmaceutical and chemical-producing crops have already been planted in more than 300 open-air field trials nationwide, and the locations of these plantings are not disclosed to the public.²¹ Contamination of food crops has already occurred, fortunately it was caught before reaching grocery shelves. In November 2002, the USDA released information on two separate incidents of biopharmaceutical contamination of food crops. Corn engineered to carry a pig vaccine contaminated over 500,000 bushels of soybeans in a Nebraska grain elevator.²² The contamination occurred when some stalks of the experimental corn plants grown on the field in the previous year sprouted among the soybeans that had been planted on the same fields. Agriculture department inspectors found some of the corn plants and ordered the company to remove the corn, but the soybeans were harvested before this happened, and contaminated an entire grain elevator. It was fortunate that these cases of contamination were detected in the handling process before being sold and consumed. It is very possible that biopharmaceutical crops might contaminate the food supply in the future, especially as the number of test plots increase.

The food industry has acknowledged the serious risks posed by biopharmaceutical crops and has called for stronger regulations. The Grocery Manufacturers of America (GMA), the world's largest association of food and beverage companies, filed comments to the FDA in February 2003 that essentially called for a moratorium on biopharm plantings until stronger regulations are in place. Specifically, GMA's press release stated, "Plant-made pharmaceuticals [PMPs] aren't meant to make it to the dinner table. To minimize the possible risks, a clear system of regulatory enforcement and

"The food industry is clearly an affected stakeholder in this [biopharm] issue...The **risk of contamination** of the food or feed supply is just too great."

-National Food Processors Association
press release 2003

liability needs to be in place for the development, testing and eventual commercialization of PMPs - just as we require strict regulations for conventional drugs made in brick and mortar facilities. Until then, no permits for new field trials or for commercialization should be issued by USDA because there is no room for trial and error.”²³ The National Food Processors Association (NFPA), a trade group representing the \$500 billion food processing industry, sent comments to the FDA strongly urging that no food or feed crops are used to produce plant-made pharmaceuticals or industrial chemicals “without a 100 percent guarantee against any contamination of the food or feed supply.”²⁴

If Kraft continues to tolerate genetically engineered ingredients in its foods, it makes it harder to screen for biopharm contamination. Currently, testing for biopharm contamination would require Kraft to screen for each of the hundreds of different biopharm compounds that are being field-tested and have the potential to contaminate food crops, a costly process. If Kraft would remove genetically engineered ingredients, the company would then only need to test for a handful of gene promoters that are used in all genetically engineered crops to detect biopharm crops and other unapproved varieties being grown in field trials that have the potential to contaminate the food supply.

Kraft could be held liable for harm rising from food contaminated by pharmaceutical and chemical crops, especially since the company is aware of the potential for contamination to occur. Kraft has not made public what steps it has taken, if any, to prevent contamination or to screen for biopharmaceuticals and industrial chemicals. Given the potential for liability, Kraft should disclose to its shareholders what it is doing to ensure that its final products are not subject to biopharm contamination. Kraft shareholders should demand this information in order to protect their investments.

3 Consumer Rejection of Kraft Products

Consumer concern about the risks of genetically engineered foods continues to rise and could lead to a rejection of Kraft products if they are thought to contain genetically engineered ingredients. An internal report commissioned by the Food and Drug Administration in 2000 to gauge sentiment about its proposals for voluntary labeling found that virtually everyone questioned in a series of focus groups the agency sponsored believed that foods ought to be labeled if they contain any genetically engineered ingredients.²⁵ The report stated that consumers feel “outrage” when they learn how many supermarket products already are produced through biotechnology.²⁶

Additionally, dozens of U.S. media, government and industry opinion polls repeatedly show an overwhelming majority of American consumers support labeling of genetically engineered food. In a 2001 poll by ABC News.com, 93 percent surveyed said the federal government should require labels saying whether food has been genetically modified or bioengineered. The poll results went on to admit “[s]uch near una-



Photo: Jim Robinson / Chicago Tribune

“Concerns with the safety and quality of food products could cause consumers to avoid our products.”

-Kraft Foods Prospectus 2001

nimity in public opinion is rare.”²⁷ In addition, a majority of Americans—52 percent—believe genetically engineered foods are unsafe, according to the survey.

The growth of activist movements against genetically engineered foods and products containing these foods continues to grow. Some of the world’s largest environmental and consumer groups have organized opposition to genetically engineered crops, targeting more than 15 major US companies for consumer action. Starbucks was the target of a 100-city protest, which caused it to announce its intention to offer non-genetically engineered alternatives.²⁸

Kraft is also the target of a national campaign organized by Genetically Engineered Food Alert and there have been over 500 protests held at grocery stores across the country.

Rejection of genetically engineered foods has come from a wide variety of organizations in the U.S. and abroad. The American Public Health Association and the California Medical Association both passed resolutions in 2001 supporting labeling of genetically engineered foods. In 2000, the Pope expressed opposition to genetically engineered foods and called for rigorous scientific and ethical controls to avoid possible “disaster for the health of man and the future of the Earth.”²⁹ Additionally, the U.S. Chefs Collaborative, made up of hundreds of the nation’s top chefs, is advocating the elimination of genetically engineered foods from menus;³⁰ the European parliament recently voted for labeling of all products containing genetically engineered ingredients;³¹ and in June 2002 Oxfam International came out with a statement backing concerns about the health risks of genetically engineered foods.³²

4 Loss of Competitive Advantage

As concerns about genetically engineered foods rise, consumers look for alternatives. In response, more and more companies have removed genetically engineered ingredients from some or all of their products. In order to continue to be a market leader in an ever-increasingly competitive industry, Kraft must acknowledge and react to this consumer trend.

Consumers are voicing their concerns about genetically engineered foods with their purchases, particularly in the growing market for organic food. Under the new organic standards implemented in October 2002, genetically engineered foods are banned from foods sold as organic. Demand for organic products is currently at an all-time high and one of the fastest growing segments of U.S. agriculture.³³ A recent study by USDA’s Economic Research Service indicates that certified organic cropland more than doubled in the U.S. during the 1990s.³⁴ Retail sales of organic products have shown compounded annual growth of over 21% since 1996 and this rate is expected to continue.³⁵

There is also a growing market for non-genetically engineered crops beyond the organic market. The *Wall Street Journal* reported that in Europe, “consumer opposition is so intense that ‘GM-Free’ has become an effective marketing slogan.”³⁶ In fact, most major European food companies have stopped using genetically engineered ingredients in their European products, including Pepsi Cola, Coca Cola, Heinz, Mars, Danone, Kellogg’s, Campbell Foods, Cadbury Schweppes and Kraft Foods. When surveyed, these companies said that they currently source all their ingredients from non-genetically engineered crops for the food and drink they sell in Europe.^{37,38} Even

“Our success depends in part on our ability to anticipate the tastes and dietary habits of consumers and to offer products that appeal to their preferences.”

- Kraft Foods Prospectus 2001

some of the staff cafeterias at Monsanto's own UK headquarters have stopped serving genetically engineered foods.³⁹

Consumer concern and rejection of genetically engineered foods began earlier in Europe than in the U.S., and we are now seeing this trend among American food companies as controversy around these foods continues. Seagram, one of the world's largest distillers⁴⁰ and Gardenburger, one of the largest makers of soy-burgers, have removed genetically engineered ingredients.⁴¹ McCain Foods, the world's largest French fry maker, also committed to no longer use genetically engineered potatoes, stating, "The difficulty is that consumer acceptance of this science was not complete. We're in the business of giving consumers what they want, not what we want them to eat."⁴² Additionally, Gerber, H.J. Heinz, Frito-Lay, McDonald's, and Trader Joe's have already removed genetically engineered ingredients from some of their products (see case studies).

5

Damage to Reputation and Brand Image

Kraft faces damage to its reputation and brand image by continuing its use of genetically engineered ingredients. This risk exists as long as genetically engineered foods remain controversial and Kraft continues to use these ingredients.

According to the Reputation Institute, a private research organization founded by professors at New York University and Erasmus University in the Netherlands, "tangible financial benefits are associated with higher reputational standing."⁴³ Evidence presented at a conference on corporate reputations in 1997 showed that financial analysts are influenced by company reputations in forecasting earnings; investors are willing to pay more for companies with higher reputation; and business students are more attracted to jobs in high-reputation companies.⁴⁴ Other papers showed evidence of a direct connection between reputation and bottom-line.

One example of this connection can be seen with the impact that organized campaigns against Nike's labor practices had on the company's brand image that were reflected in the company's financial statements. After years of protests charging Nike with manufacturing its products in sweatshops, in 1998 the company's return on its profits fell from 17 percent to 7.4 percent and its share price dropped to a low of \$38, down from a high of \$64 just months earlier.⁴⁵ *BusinessWeek* reported that the company "[took] a beating from labor activists," and its brand image value fell 5 percent in 2001.⁴⁶

Kraft, Philip Morris, and Altria

Damaged reputation is something that Philip Morris, parent company of Kraft, has been working to remedy. In November 1999, after the company lost two tobacco-related lawsuits, the cover of *BusinessWeek* read, "Philip Morris: What It's Like to be the Most Reviled Company."⁴⁷ The article reported, "with its reputation—and its stock price—in shreds, Philip Morris recently embarked on an unprecedented campaign to rehabilitate its image." More than two years later, Philip Morris still scored at the bottom of the list of the 2001 RQ Gold Survey of Best Company Reputations, by Harris Interactive, placing 59 out of 60. In response to the survey, senior vice president and Director of Harris Interactive's Reputation Practice stated, "The RQ results...highlight the challenge of improving corporate reputation, and the

"Adverse publicity about these types of concerns, like the recent publicity about genetically modified organisms... **may discourage consumers from buying our products** or cause production and delivery disruptions."

-Kraft Foods Prospectus 2001

ease at which it can be lost.”⁴⁸ In 2002, Philip Morris rose to 52nd on the list, with companies beset by corporate scandals that year, such as Enron, Global Crossing, WorldCom, and Anderson, placing lowest on the list of reputations.⁴⁹ Now Philip Morris Companies, under the new name and image of Altria, may be able to significantly improve its reputation. The companies should not risk controversial food ingredients or risk damage to the value of Kraft’s brand image.

BusinessWeek in 2002 estimated Kraft’s brand value to be worth over \$4 billion,⁵⁰ a substantial amount for a company with total assets of \$57 billion.⁵¹ Continuing to use controversial genetically engineered ingredients would put Kraft’s reputation and brand image at risk, which could affect Kraft’s financial statements and potentially impact the entire Altria family of companies.

6 Insurance Industry Raises Concerns

Because of the liability risk associated with genetically engineered crops and foods, some insurance companies are hesitant to insure firms and farmers involved in genetically engineered foods.

In March 2002, insurance companies in Scotland deemed genetically engineered crops too dangerous to insure, stating that these crops are as risky as war and nuclear accidents.⁵² A spokesperson for a leading Scottish farm insurer stated, “Until there is more scientific evidence and legal information it is impossible for any insurance company to provide cover.”⁵³

The Swiss reinsurance company Rueck, in a 1998 brochure on genetic engineering and liability insurance, reported that the risks of genetic engineering could no longer be insured with traditional means.⁵⁴ The company focused this analysis on the pharmaceutical, agricultural, and food companies, and stated that the main danger of genetic technologies lies in the fact that “political and legislative rules may change suddenly...public opinion worldwide is an unpredictable factor...and allergic reactions to transgenic food ingredients are possible in principal” and could lead to lawsuits.⁵⁵

As documented in the 2001 report *Genetically Engineered Food and Financial Risk* by As You Sow Foundation, Swiss Re, the world’s second largest reinsurance company, released a report in 1998 stating that the risks of genetic engineering “could lead to unsupportably high liability risks which cannot be carried by either the genetic engineering industry or the insurance industry alone.”⁵⁶ The report also said that genetic engineering “represents a particularly exposed long-term risk.”

A farming journal released in November 2001 stated that the Insurance Council of Australia (ICA) is reluctant to insure farmers, biotechnology and food companies for claims involving genetically-modified foods.⁵⁷ Australian insurers are wary of lawsuits because of allergic reactions to genetically modified foods, contamination, and the development of herbicide resistant super-weeds. The journal also noted that insurers fear a repeat of the Wittenoom asbestos disaster, in which mining companies were sued for millions of dollars by workers who contracted cancer years after being exposed to a deadly mineral.

“Genetically modified crops, like war and nuclear accidents, have been deemed **too dangerous to insure against.**”

-The Sunday Herald, Scotland

7

Shareholders and Analysts Raise Concerns

Banks and financial analysts have been warning for years against investing in agricultural biotechnology. In 1999, Deutsche Bank, Europe's largest bank, advised investors to sell their shares in U.S. companies involved in the development of genetically modified organisms (GMOs) in a report entitled *GMOs Are Dead*.⁵⁸ The report cited growing consumer concern as a reason to pull out of investing in biotechnology, predicting, "GMOs, once perceived as a bull case for this sector, will now be perceived as a pariah." Another report by the Bank, entitled *Ag Biotech: Thanks, But No Thanks*, states that food manufacturers will not 'take the bullet' for genetically engineered foods in the face of the controversy surrounding it, and likens the controversy surrounding genetic engineering to that of nuclear energy.⁵⁹ The report also states that consumer concern regarding genetic engineering is on the rise in the U.S., and that "it has not yet gotten the attention of the ordinary U.S. citizen, but when it does—look out."

Credit Suisse First Boston warned that the commercial development of genetically engineered foods is suffering from "negative momentum" and compared it to nuclear power, saying both are scientifically sound but that "[n]o one is building new nuclear plants today."⁶⁰ In 2000 a J.P. Morgan analyst said, the "market's appetite for life science companies has changed 180 degrees."⁶¹ That same year, while medical biotech firms rose 58 percent on Burrill's index, biotech firms engaged in agriculture fell 11 percent.⁶²

Socially Responsible Investing (SRI)

Genetically engineered foods have generated the most shareholder resolution proposals since corporations were challenged for doing business in South Africa during apartheid,⁶³ an indicator of the climate of concern around genetically engineered foods among shareholders, particularly socially responsible investors.

Socially responsible investment currently accounts for about 13 percent of investments under professional management in the U.S., and continues to become more mainstream and influential.⁶⁴ Total investments have grown from \$40 billion in 1984 to \$639 billion in 1995 to over \$2 trillion in 1999.⁶⁵ With its IPO in 2001, Kraft became eligible for investments from SRIs that traditionally screen out tobacco companies as part of their investment criteria, opening up opportunities for investment from this growing industry. However, continued use of genetically engineered ingredients may again exclude Kraft from this growing pool of investors. Socially responsible investment firms have been increasingly moving away from investing in companies that use or produce genetically engineered foods. Patrick McVeigh, formerly executive vice president at Trillium Asset Management stated, "Until health and safety issues are sufficiently answered, we believe that the high stock valuations of the agricultural biotechnology companies pose undue risk for investors."⁶⁶

8

Risk of Sudden Regulatory Changes

Current government regulations of genetically engineered crops have been criticized for their inadequacy from sources both inside and outside of these regulatory bodies (See Appendix B). Efforts to strengthen regulations at the local, state, and national levels indicate that, eventually, the government will act to better regulate genetically engineered foods. Sudden changes in government regulation could affect Kraft's business practices if the company has not already taken steps towards shifting its production. Taking precautionary steps now to phase out the use of genetically engineered ingredients will save the company from potential emergency steps to quickly remove these ingredients in the future.

There have been efforts in many states to pass legislation for stronger regulations of genetically engineered foods. Legislation calling for a ban, moratorium, or labeling of genetically engineered foods has been brought before the legislature in California, Colorado, Iowa, Hawaii, New York, New Hampshire, Vermont, Massachusetts, Maine, Michigan, and Minnesota in the past few years. Maryland and Washington state have both passed legislation for a moratorium on the production of genetically engineered fish. Legislation came before the state legislature in both North Dakota and Montana calling for a moratorium on genetically engineered wheat, which may come to market as early as 2003. In 2000, the city of Boston passed a resolution to ban genetically engineered foods; Boulder, Colorado banned genetically engineered crops on public lands; and Austin, Texas passed a resolution calling for a federal moratorium on genetically engineered foods.⁶⁷ State ballot drives calling for labeling have been conducted in California, Florida, and Washington, and Oregon.⁶⁸

A report completed by the Rose Foundation looked at environmental regulations and financial risk, finding that while corporations face expenses when complying with new regulations, firms can reduce these costs by preparing for pending regulation.⁶⁹ The report pointed to research done by Innovest Strategic Value Advisors on pulp and paper companies. This research found that it cost one paper company, Georgia Pacific, between \$500 and \$550 million to come into compliance with new environmental regulations, which accounted for 4% of its fiscal revenue for that year (1998). Another company, Weyerhaeuser, had already implemented measures to reduce air and water emissions before the new regulations were mandated. It only cost Weyerhaeuser \$80 million, or 0.7% of its fiscal revenue for that year, to come into compliance.

The report, "Pure Profit: The Financial Implications of Environmental Performance," also demonstrates the financial impacts of environmental risks and regulations.⁷⁰ From these studies, it is clear that corporations may experience financial losses and decreased shareholder value for failure to prepare for regulatory changes, and the same may be extended to regulations on genetically engineered foods. By anticipating potential regulations to label or remove genetically engineered ingredients, Kraft could prevent financial loss.

“Various governments throughout the world are **considering regulatory proposals** relating to genetically modified organisms or ingredients, food safety and market and environmental regulation...”

-Kraft Foods Prospectus 2001

REMOVING GENETICALLY ENGINEERED INGREDIENTS

To avoid these financial risks, it is possible for Kraft to avoid genetically engineered ingredients in its foods. Most of the genetically engineered ingredients in U.S. foods come from three crops, soy, corn, and canola, and there are non-genetically engineered sources of these crops available. For example, in 2000 over 90 percent of corn grown around the world was not genetically engineered.⁷¹ Many food companies have already demonstrated that it is possible for large U.S. food companies to stop using genetically engineered ingredients.

Following are case studies of U.S. food companies that have removed genetically engineered ingredients from their products. None of these companies reported negative costs from removing genetically engineered ingredients, and in most cases sales actually increased for companies following the switch.



Gerber Baby Food

Baby food giant Gerber announced in August 1999 that the company would no longer use genetically engineered ingredients in its baby foods and that it would purchase only organic corn. Gerber is the nation's largest maker of baby food, producing 5.5 million jars per day with annual worldwide sales of \$1 billion.⁷² Gerber is owned by Novartis, one of the largest biotechnology companies in the world at the time of the switch.⁷³ Al Piergallini, president of Novartis's U.S. consumer health operation, said: "I have got to listen to my customers. So, if there's an issue, or even an inkling of an issue, I am going to make amends. We have to act preemptively."⁷⁴ Other baby food makers, including H.J. Heinz, have since made similar product changes.⁷⁵

Novartis then announced in September 1999 that it was getting out of the biotechnology business, and the Board of Novartis approved the divestment of the Agribusiness sector by merging it with the Agrochemicals business of AstraZeneca Plc.⁷⁶ By June 2000, Novartis had completely banned genetically engineered foods from all of its food products, mostly health foods such as cereal bars. In Novartis' 2000 Annual Report, after

Gerber removed genetically engineered ingredients and Novartis spun-off its Agribusiness sector, the company reported sales and earnings per share had both increased 10% since 1999.⁷⁷



Frito-Lay

In late 1999, Frito-Lay, the world's largest manufacturer and distributor of snack chips, comprising 67 percent of PepsiCo's sales, told its growers that it would no longer accept genetically modified corn. A spokeswoman at Frito-Lay attributed the switch to growing consumer concern, saying, "In late '99, we did see increasing questions from our consumers, and we're a consumer products company, so we said, 'This year, let's not do it.'"⁷⁸ Frito-Lay sources approximately 95 percent of its ingredients directly from its farmers and has asked that they only provide non-genetically engineered ingredients. The remaining ingredients are purchased on the open market and may still be genetically engineered.

Frito-Lay and PepsiCo did not report any financial losses related to their move from genetically engineered ingredients. In fact, PepsiCo's 2000 Annual Report reported com-

parable net sales increased 8 percent in 2000, “primarily due to volume gains across all business segments and effective net pricing at Frito-Lay and Pepsi-Cola.”⁷⁹



McDonald's

In April 2000, McDonald's told its potato suppliers that it no longer wanted

to use Monsanto's genetically engineered 'New Leaf' potato in its French fries. J.R. Simplot, McDonald's main supplier of potatoes since the 1960s and one of the nation's largest potato processors, then told its farmers to stop growing genetically engineered potatoes. “Virtually all the [fast food] chains have told us they prefer to take non-genetically modified potatoes,” said Fred Zerza a spokesperson for J.R. Simplot.⁸⁰ In response to consumer and food company rejection to these potatoes, in March 2001 Monsanto announced that it would discontinue its line of “New Leaf” potatoes.⁸¹

After McDonald's shifted to non-genetically engineered potatoes, systemwide sales increased 5% in the following quarter.⁸² Reported system wide sales for McDonald's U.S. increased 3% in 2000 and 2% in 2001.⁸³

Trader Joe's, Whole Foods, and Wild Oats Markets

TRADER JOE'S



U.S. grocery store chain Trader Joe's announced in November 2001 that it would stop using genetically

engineered ingredients in its store brand products, affecting 85 percent of the prod-

ucts sold in Trader Joe's 131 stores.⁸⁴ The company said that the change is a result of talking with its customers and acknowledged that 90 to 95 percent of customers said they wanted the chain to stop using genetically engineered ingredients. The switch is also the result of a concerted campaign led by grassroots groups and Greenpeace, who urged Trader Joe's to remove genetically ingredients from its products. The company is working closely with its distributors and has said that it plans to be free of genetically engineered ingredients in its Trader Joe's brand products within a year. The company is urging all of its suppliers, even those without the Trader Joe's brand name, to stop using genetically engineered ingredients, and has called on government regulatory agencies to set stronger regulations of these foods.

In 1999, Whole Foods and Wild Oats announced that they would stop using genetically engineered ingredients in their private-label products. These two grocers were the largest U.S. food retailers to ban genetically engineered ingredients, switching ingredients in more than 1,300 products in more than 200 stores throughout the U.S.⁸⁵ To ensure that these products are now free of genetically engineered ingredients, Whole Foods arranged for lab testing of products for genetically engineered ingredients; Wild Oats said that it would take the word of its suppliers.

Following this announcement, share value for Whole Foods and Wild Oats outperformed large food retailers. In 1999, Standard & Poor's index of retail food chain store stocks declined 40 percent, while Whole Foods shares declined only 6 percent, and Wild Oats shares rose 7 percent.⁸⁶ Comparable store sales for Whole Foods increased 7.7% in 1999 and 6.6% for Wild Oats.

None of these companies reported negative costs after removing genetically engineered ingredients from their products and all demonstrated increased sales. The correlation between removing genetically engi-

neered ingredients and increased sales does not necessarily indicate causality. However, there is no indication that removing genetically engineered ingredients has a negative financial impact. There is need for a detailed, multi-year financial analysis of these results to determine the effects that removing ge-

netically engineered foods may have had on shareholder value. However, the fact that there have not been any demonstrated negative financial impacts from removing genetically engineered ingredients serves as another argument in favor of removing these ingredients.

MANY RISKS, FEW BENEFITS

Nearly all genetically engineered crops currently on the market are designed to produce their own pesticide or to be tolerant to agrochemicals—these foods are not designed to be healthier, taste better, have increased nutritional value, or have other consumer benefits.⁸⁷ The financial risks that food companies face in continuing to use genetically engineered ingredients may be justifiable if they were proven safe and there were significant benefits to the consumer or manufacturer, but that is not the case.

Food company executives have acknowledged that genetically engineered foods do not benefit consumers or food companies. A General Mills executive recently said that food manufacturers receive no marketing advantage from the current technology; instead, food companies have had to deal with one controversy after another surrounding genetically engineered corn and soybeans.⁸⁸ “Candidly, we have told the biotech industry

that we are in a perilous situation until consumer benefits arrive,” said Austin Sullivan, senior vice president at General Mills. When asked why food companies don’t stop using genetically engineered ingredients, Sullivan responded: “That’s a question we ask ourselves from time to time.”⁸⁹ Consulting firm

Promar International also stated in a report on biotechnology, “[A]t this stage American food manufacturers and consumers are being asked to accept the risks that come with this technology without receiving significant immediate rewards.”⁹⁰

One reason that many food companies continue to endure these risks is the expectation that genetically engineered foods will offer marketing benefits in the future. Biotech companies have promised for years that they are engineering plants to improve food traits to consumers, but none of these foods have yet to be marketed.

The most highly publicized of these crops is ‘Golden Rice’, rice that is genetically engineered to produce vitamin A. ‘Golden Rice’ has been in development for more than 10 years, has cost more than \$100 million, and is still unlikely to alleviate malnutrition.⁹¹ According to an article in *New York Magazine*, this rice produces so little beta-carotene that an 11-year-old would have to eat 15 pounds of cooked ‘Golden Rice’ every day to get sufficient Vitamin A and would still need adequate amounts of zinc, iron, and fat to absorb the nutrient.⁹² Meanwhile, Filipino scientists at the International Rice Research Institute have used traditional breeding methods to develop a rice variety that contains Vitamin A plus zinc and iron that will likely come to market before ‘Golden Rice’.⁹³

“Candidly, we have told the biotech industry that we are in a **perilous situation** until consumer benefits arrive...”

-Austin Sullivan, senior vice president at General Mills.

HIDDEN COSTS

In addition to not offering any marketable benefits, studies indicate that genetically engineered crops actually cost more to produce than non-genetically engineered crops. Genetically engineered crops have been found to increase production costs for farmers, have lower yields, and be less economical than non-genetically engineered crops.

A financial analysis of corn engineered with Bt found that farmers who have planted genetically engineered Bt corn between 1996 and 2001 have actually lost more than \$92 million, an average of \$1.31 per acre.⁹⁴ This loss is attributed to the higher cost for seeds and the insufficient yield improvements and other benefits to make up for the higher seed cost.⁹⁵ Nation-wide, farmers spent \$659 million more on Bt corn seed during those years. Those farmers harvested about 276 million more bushels, worth approximately \$567 million, for a net loss of \$92 million.⁹⁶

Another analysis by an Iowa State University economist, based on USDA crop data from 2000, found that there is no economic advantage for Iowa farmers to plant Roundup Ready soybeans or Bt corn.⁹⁷ He found that Roundup Ready soybeans, engineered to be tolerant to Monsanto's Roundup herbicide, yielded on averaged 1.6 bushels less per acre than conventional soybeans. Additionally, the seed cost for Roundup Ready soybeans was \$5.69 more per acre than conventional soybeans, while the herbicide costs for Roundup



Ready soybeans was \$6.17 less. The author concluded that when all of the costs, including those mentioned, plus fertilizer, all machinery operations, insurance, and a land charge are considered, there is essentially no difference in costs between the tolerant and non-tolerant fields.⁹⁸

Table 2. The Production and Economic Impacts of Bt Corn 1996-2001

Bushels of Corn Loss Avoided, Value of Increased Yield, the Bt Corn Premium Farmers Pay, and Impact on Farm Level Profits⁹⁹

	1996-2001
U.S. Total Yield	267,128,808 bushels
Dollar Value Added Yield	\$566,793,785
Bt Corn Price Premium Paid	\$659,130,000
Net Profit (loss) from Bt Corn	\$(92,336,215)

RECOMMENDATIONS

Kraft faces unnecessary financial risk by continuing to use genetically engineered ingredients. Oversight by government regulatory agencies is not adequate to protect Kraft from these risks, made evident by the StarLink contamination that cost the food industry billions of dollars. The potential for Kraft and other food companies to undergo future liabilities, such as recalls and lawsuits, is great if they continue to use genetically engineered ingredients, and financial experts have warned of these risks. Not only is Kraft at risk of incurring costs from recalls and lost sales, but the company's reputation and brand image is at risk as consumer concern about the safety of genetically engineered foods grows. There is no consumer demand for genetically engineered foods, they do not offer any marketing benefits to Kraft, nor is there any evidence that these foods will benefit consumers in the near future.

The following recommendations would reduce Kraft's financial liability and protect shareholders from unnecessary risk from genetically engineered ingredients:

1. Phase Out Genetically Engineered Ingredients from Kraft Products

Removing genetically engineered ingredients from Kraft's products would reduce the potential liability of product recalls or liability lawsuits, even reducing the potential for contamination by biopharmaceutical crops. Re-

moving genetically engineered ingredients would increase consumer confidence in the company, improve the company's reputation and brand image, and reduce costs incurred from potential regulatory compliance. Several food companies have already removed genetically engineered ingredients from their foods with no related financial losses reported. Sales at each of these companies increased following the switch. Kraft itself has removed genetically engineered ingredients from its European brands and has not reported negative financial costs. Kraft has nothing to gain by continuing to use genetically engineered ingredients, and much to lose.

2. Shareholder Disclosure

Recent happenings such as the Enron debacle have led to greater shareholder anxiety about hidden financial risks and demand for increased shareholder disclosure. Inadequate disclosure of financial risks puts shareholders at a disadvantage because they cannot fully evaluate a company's financial statements. To maintain shareholder confidence in Kraft's image as a responsible corporate citizen, and in order to be fair to its shareholders, the company should fully disclose to its shareholders information related to its use of genetically engineered foods including the liabilities and financial risks these foods pose. In particular, Kraft should disclose steps it is taking to prevent biopharmaceuticals and industrial chemical crops from contaminating its foods.

APPENDIX A. HEALTH AND ENVIRONMENTAL CONCERNS

While many of the risks posed by genetically engineered foods may still be unknown, scientists have found evidence of the following health and environmental risks:

- **Genetic Pollution**—Contamination of non-genetically engineered crops and plants by genetically engineered crops is widely occurring. Mexico’s Ministry of Environment reported that genetically engineered corn had contaminated native varieties of corn in remote regions of Mexico,¹⁰⁰ raising serious concerns about the destruction of diversity in the birthplace of corn. A study on contamination by Purdue University released in June 2002 found that the risks genetically engineered organisms pose to natural populations is greater than previously believed, and could result in extinction of entire populations.¹⁰¹
 - **Increased Agrochemical Use**—Over 99% of the genetically engineered crops on the market are designed to be herbicide-tolerant, to produce their own pesticides, or both. Research done by Charles Benbrook, former Chair of the Board on Agriculture of the National Academy of Sciences, finds a two to five times increase in herbicide use on herbicide-tolerant soybean crops as compared to conventional soybean crops.¹⁰² A January 2003 *New York Times* article documents that the popularity of herbicide-tolerant crops, have led an increased use of the herbicide Roundup.¹⁰³ Roundup has been found to have significant health impacts, including disrupting hormone production¹⁰⁴ and has been linked to birth defects.¹⁰⁵
 - **Unintended Harm to Insects**—A 1999 study at Cornell University¹⁰⁶ and follow up research at Iowa State¹⁰⁷ found that the pollen from a variety of Bt corn ap-
- proved by the Environmental Protection Agency for commercial use, is toxic to Monarch butterflies. A study published in *Nature* in 1999 by scientists at New York University demonstrated that Bt toxins released through the roots of Bt crops can remain active for 234 days, posing risks to soil organisms.¹⁰⁸ Industry research has shown, for example, that earthworms living in soil exposed to Bt cotton gained 29.5 percent less weight on average than other earthworms.¹⁰⁹
- **Gene Transfer**—Recent research with genetically engineered soy found that genes can pass from genetically engineered organisms into bacteria in the human gut.¹¹⁰ After one meal that included herbicide-tolerant soy, scientists discovered that bacteria in the gut of three people had become herbicide tolerant. Virtually all genetically engineered foods contain antibiotic resistance marker genes, which could pose serious risks to human health if genes for antibiotic resistance were to be taken up by bacteria in the human gut. Antibiotic resistance is already a serious public health concern.¹¹¹
 - **New Allergies**—StarLink corn was not approved for human consumption because of its potential for triggering allergic reactions, such as vomiting, diarrhea, and anaphylactic shock.¹¹² Scientist advisors to the EPA raised concerns that all Bt proteins could act as “antigenic and allergenic sources.”¹¹³ The FAO and WHO recommend that safety assessments of genetically engineered foods should include an assessment of the allergenicity of novel proteins.¹¹⁴ Such tests are not currently required of new genetically engineered foods.

APPENDIX B. REGULATORY AGENCIES

Food and Drug Administration (FDA)

When food products have a component added to them, they are evaluated by the FDA under food additive regulations that require mandatory pre-market testing. Food and color additives undergo strict testing outlined by the National Research Council to ensure safety, and products are then labeled. Genetically engineered foods have been exempted from these regulations and are not required to undergo any safety testing by the FDA. In 1992 the FDA decided before any products had reached the market that genetically engineered foods were “substantially equivalent” to traditionally bred conventional crops despite the fact that genetically engineered foods contain viral marker genes and genetic combinations that could never occur in nature. Because of this decision, genetically engineered foods are not required to undergo any mandatory pre-market safety testing or labeling.¹¹⁵ Instead, the FDA recommended, but did not require, that developers of engineered plants consult with the FDA about these genetically engineered foods before they are marketed.

There was dissension within the FDA over this ruling. A lawsuit against the FDA demanding adequate safety testing and mandatory labeling of genetically engineered foods forced the disclosure of documents which shows the agency beset by internal criticism regarding the safety of genetically engineered foods and the political pressure to fast track their introduction.¹¹⁶ Among this internal criticism, a member of FDA’s Microbiology Group stated, “There is a profound difference between the types of unexpected effects from traditional breeding and genetic engineering.” FDA’s Division of Food Chemistry and Technology warned, “Undesirable effects such as the appearance of new not previously identified toxicants...may escape

breeders’ attention unless genetically engineered plants are evaluated specifically for these changes.”¹¹⁷

In a report released in January 2003, the Center for Science in the Public Interest reviewed the current FDA oversight of genetically engineered crops and found, among other things, that “biotechnology companies provide inadequate data to ensure their products are safe,” and that the FDA’s current voluntary notification process “is not up to the task of ensuring the safety of future [genetically engineered] crops.”¹¹⁸

Environmental Protection Agency (EPA)

The EPA regulates the subset of genetically engineered plants that are engineered to produce their own pesticides, most commonly crops engineered with bacteria gene *Bacillus thuringiensis* (*Bt*). The EPA is chartered with ensuring that these crops go through a pre-market approval process to assess potential health and environmental effects. Ironically, EPA’s mandatory review for *Bt* crops is the only required review of any of these agencies, including FDA. However, the Agency often relies on research that is submitted by the applicant, potentially compromising its objectivity. A peer-reviewed report released by Eco Strat, an independent Swiss scientific assessment firm, indicated that the EPA accepted inappropriate and scientifically questionable studies in approving the first *Bt* corn for U.S. growers.¹¹⁹ The EPA has also failed to do comprehensive testing to determine the safety of the crops it regulates. In 2001 the EPA’s own Scientific Advisory Panel recommended critical tests to assess health risks, particularly allergenicity of *Bt* crops, yet these tests have not been done and *Bt* crops continue to be grown in large quantities and found in many products.

U.S. Department of Agriculture (USDA)

The USDA is responsible for determining whether genetically engineered crops pose threats to the environment and then regulating the growth of these plants, as well as overseeing the field testing of crops that have yet to be approved for commercial growth. From the beginning, USDA oversight was criticized by scientists and government agencies as being inadequate and for allowing potentially harmful plants to be grown virtually unregulated. A report by the General Accounting Office (GAO) in 1988 stated, “USDA is exempting certain categories of organisms from regulatory scrutiny prior to developing scientific information on the behavior of these organisms in the environment.”¹²⁰

The criticism of USDA oversight of genetically engineered crops continues today. A February 2002 report by the National Academy of Sciences criticized the USDA’s oversight of field trials of new engineered crops. The Council concluded that, “The U.S.

Department of Agriculture should more rigorously review the potential environmental effects of new transgenic plants before approving them for commercial use.”¹²¹ Referring to inadequate regulation of a new class of crops engineered with chemicals or pharmaceuticals, the report also noted that, “The production of non-edible and potentially harmful compounds in crops such as cereals and legumes that have traditionally been used as food creates serious regulatory issues. With few exceptions, the environmental risks that will accompany future novel plants cannot be predicted.”

Additionally, a front page story in the New York Times from November 1999 stated, “Part of the problem, scientists say, is that the Agriculture Department has set no scientific standards for proving the environmental safety of a plant.”¹²² Without strong oversight of the growth of these crops and established standards for who is liable for environmental impact and contamination, contamination of the food supply may be more likely and food companies and farmers may be liable for damage caused by their crops.

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