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**Reexamining Food Labels:
A Proposal for Labeling Environmental Information
on Food Products**
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April 4, 2001
Food and Drug Law
Mr. Peter Barton Hutt

Informed consumers are essential to the fair and efficient functioning of a free market economy. Packages and their labels should enable consumers to obtain accurate information as to the quantity of the contents and should facilitate value comparisons. Therefore, it is hereby declared to be the policy of the Congress to assist consumers and manufacturers in reaching these goals in the marketing of consumer goods.¹

Food labels today read as a potential wealth of information. Consumers know, for example, nutrition information about their foods, including the food's calories, fat, cholesterol, vitamins and minerals. Consumers also know the ingredients in foods, including some that seem quite incomprehensible and unpronounceable to the average consumer, such as gum acacia² or disodium guanylate.³ Moreover, some food manufacturers opt to inform consumers about the health benefits of their food, such as touting that their food is high in fiber and low in fat and may therefore be part of a diet reducing one's risk of cancer. Food labels, however, do not provide information on all of the ingredients in the product, and often do not provide information on the process used to make the product. Consumers, for example, will not find ingredients such as malathion,⁴ dioxin,⁵ polychlorinated biphenyls (PCBs),⁶ or kanamycin antibiotic resistance gene or enzyme⁷ on their food labels. Consumers will often, moreover, not be told what animal feed meat animals were fed, or under what conditions the animals were raised. While much recent attention has been given to the lack of transparency of international institutions, namely the World Trade Organization, consumer-citizens are beginning to ask

² Gum acacia is an ingredient in Peanut M&Ms produced by Mars, Inc.

³ Disodium guanylate is an ingredient in a Frito-Lay product.

⁴ Malathion is a pesticide that has been found in food products. See Center for Food Safety & Applied Nutrition, U.S. Food & Drug Administration (FDA), *Pesticide Program: Residue Monitoring 1999*, at tbl. 3 (April 2000), <http://www.cfsan.fda.gov/~dms/pes99rep.html> [hereinafter *Pesticide Program: Residue Monitoring 1999*].

⁵ Dioxin is a chemical that has been found in food products, such as meats. See, e.g., Arnold Schecter et al., *Dioxin, Dibenzofuran, and PCB Congeners in Cooked and Uncooked Foods* (1997) (Presented at Dioxin '97, 17th International Symposium on Chlorinated Dioxins and Related Compounds, held Aug. 25-29, 1997, in Indianapolis, Indiana), <http://www.epa.gov/ncea/pdfs/cooktemp.pdf>.

⁶ PCBs are chemicals that have been found in food products, such as beef. See, e.g., Dwain Winters et al., Office of Research & Development, U.S. Environmental Protection Agency (EPA), *Coplanar Polychlorinated Biphenyls (PCBs) In A National Sample Of Beef In The United States: Preliminary Results* (1996) (Presented at Dioxin '96, The 16th Symposium on Chlorinated Dioxins and Related Compounds, held Aug. 12-16, 1996, at Amsterdam, The Netherlands), <http://www.epa.gov/ncea/pdfs/pcbbeef.pdf>.

⁷ See Karen A. Goldman, *Labeling of Genetically Modified Foods: Legal and Scientific Issues*, 12 Geo. Int'l Envtl. L. Rev. 717, 736-40 (2000) (discussing the Flavr Savr tomato).

for more transparency closer to home: on their grocers' shelves.⁸ For example, polls taken in January of last year showed that at least 80% of Americans supported mandatory labeling of genetically modified (GM) foods.⁹ Thus far, however, the federal government has resisted requiring that such information be included on food labels.

The federal government has largely taken the position that only the matters that affect the food product itself, and not the process, should be required on the food labels.¹⁰ While the federal government is interested in ensuring that consumers are informed about food products, including their ingredients and nutrition facts, the federal government has also been protective of what is on the label so that the consumers will not be faced with an information overload.¹¹ Producers, interested in selling their food products, only put information on the label that is required or will improve the marketability of their products.¹² This business interest means that often producers will only voluntarily label items that are positive about their food product, such as fat free, or production methods, such as organic. Producers, moreover, resist mandatory labeling as imposing additional costs on their business.¹³ Consumers, however, are then not informed of the negative aspects of the food product or production process, unless so required by the federal government. Consumer advocates respond that consumers have a right-to-know what is in their food, and should also be provided

⁸ Michael Pollan, *Produce Politics: The Spread of Eco-labels May Turn the Grocery Store into a Supermarketplace of Ideas*, N.Y. Times Magazine, Jan. 14, 2001, <http://www.nytimes.com/library/magazine/home/20010114-wwln.html>.

⁹ Center for Food Safety, *Compilation and Analysis of Public Opinion Polls On Genetically Engineered (GE) Foods* (updated Jan. 31, 2000), http://www.biotech-info.net/Polls_on_GE_foods.html.

¹⁰ See, e.g., Center for Food Safety & Applied Nutrition, FDA, *Guidance for Industry: Voluntary Labeling Indicating Whether Foods Have or Have Not Been Developed Using Bioengineering (Draft Guidance)* (Jan. 2001), <http://www.cfsan.fda.gov/~dms/biolabgu.html> (Historically, the agency has generally interpreted the scope of the materiality concept to mean information about the attributes of the food itself.) [hereinafter *Guidance for Industry*]; Goldman, *supra* note 7, at 724-25 (discussing FDA policy requiring disclosure of irradiation only if the process causes changes in the flavor or shelf life of the food).

¹¹ See, e.g., Elise Golan et al., Economic Research Service, U.S. Department of Agriculture (USDA), *Economics of Food Labeling* 17 (Agricultural Report No. 793, Dec. 2000), <http://www.ers.usda.gov/publications/aer793/AER793.pdf> (Costs of additional labeling also include the extent to which it dilutes the effectiveness of the information already included on the product.).

¹² See generally *id.* at 7-8.

¹³ See, e.g., Julie Teel, *Regulating Genetically Modified Products and Processes: An Overview of Approaches*, 8 N.Y.U. Envtl. L.J. 649, 654 (2000) (outlining arguments made against labeling of GM foods).

more information about food production methods.¹⁴ This debate is currently being played out especially over labeling genetically modified foods. The FDA has taken the position that biotechnology is a process, and only needs to be labeled if it significantly affects the food product itself.¹⁵ The line between process and product, however, is not always easy to draw. This debate therefore suggests a much larger debate that should be revisited: what precisely should be included on the food label, regarding the product itself and the manufacturing process.

Because so much of the recent conflicts in food labeling schemes concern environmental issues, such as organic foods and genetically modified foods, this paper will focus on the labeling of environmental information. Environmental information, for the purposes of this paper, is broadly defined to include production methods, such as the organic production of crops and the living conditions of animals, and effects on the product, such as pesticide and animal drug residues. In this way, this paper will explore the question of what product effects and production methods should be labeled on the product. Examining whether environmental information should be included on food labels also reflects whether food labels should be used to meet a social objective – namely, improving food production methods and the environment – similar to how nutrition information was used to bolster consumer choices toward a more healthy diet. In the end, this paper will argue that food labels should contain a mandatory Environmental Summary. Such a label should include at least the following information: (1) the use of biotechnology, (2) chemical and environmental contaminants, such as PCBs, mercury, and pesticides, and (3) production methodology, such as organic or free-range. Part I of this paper will provide a historical overview of food labeling laws and regulation in the United States, to demonstrate how this proposal for labeling fits within the purposes of the current labeling scheme. Part II of this paper will explain the reasons why food labels should include environmental information. Part III of this paper will propose the potential content and format for such a label.

¹⁴ See *id.* at 659.

¹⁵ *Guidance for Industry*, *supra* note 10.

I. Background on Food Labeling Law

The history of food labeling in this country reflects policy choices that Congress and the implementing agencies, the Food and Drug Administration (FDA) and the U.S. Department of Agriculture's (USDA) Food Safety and Inspection Service (FSIS), have made in order to protect and inform the consuming public. Over time, Congress and the implementing agencies have required producers to provide more information concerning the contents of their food product. Labeling requirements were initially enacted to serve three main purposes: (1) to protect fair competition, (2) to provide information to consumers, and (3) to ensure the safety of food products, and have more recently been used toward a fourth purpose: to meet social objectives.¹⁶ In 1990, for example, Congress passed a law requiring that most food labels contain standardized nutrition information, in order to assist consumers in choosing healthier diets.¹⁷ This section will provide an overview of the food labeling requirements to explain the purposes of food labeling. This proposal for environmental labeling has a similar hope that environmental labeling could serve these four goals of food labeling.

A. Historical Overview

Since the passage of the Food, Drug and Cosmetic Act (FD&C Act) in 1938, Congress has required that manufacturers include certain information on food labels. In particular, Congress required that labels for processed foods display (1) the name of the food, (2) the product's ingredients, (3) the content's net weight, and (4) the name and address of the manufacturer or distributor.¹⁸ Additionally, Congress prohibited the use of false or misleading claims in food labels.¹⁹ The purpose of these labeling requirements was to ensure that competition between producers was fair, and that consumers would be informed about their food prod-

¹⁶ Golan, *supra* note 11, at 1, 2 tbl. 1.

¹⁷ Nutrition Labeling and Education Act of 1990, Pub. L. No. 101-535 (1990).

¹⁸ Food, Drug, and Cosmetic Act of 1938, § 403, 21 U.S.C.A. § 343; Peter Barton Hutt, *Regulating the Misbranding of Food*, 43 Food Technology 288 (1989), reprinted in Peter Barton Hutt & Richard A. Merrill, *Food and Drug Law: Cases and Materials* 37 (2d ed. 1991) [hereinafter Hutt].

¹⁹ Food, Drug, and Cosmetic Act of 1938, § 403, 21 U.S.C.A. § 343; Hutt, *supra* note 18, at 39.

ucts.²⁰

In 1969, the White House convened a Conference on Food, Nutrition and Health. At this Conference, the FDA's restrictive policies on food standards and nutrition labeling were thoroughly criticized and rejected.²¹

The White House Conference issued a report stressing the need for sound nutrition, the capability of modern food technology to provide products to fill that need, and the use of increased public information about nutrition.²² As a result, the FDA moved away from the strict recipe approach of food standards, and instead allowed safe and suitable functional ingredients, but required that any nutrients added to foods be labeled.²³

As Peter Barton Hutt observed:

FDA made a conscious trade-off in adopting this new approach. It substantially reduced the restrictions on formulation and composition imposed by food standards and other regulations, and correspondingly increased the labeling requirements for all food. *The food industry was thus free to pursue the benefits of modern food technology, but only at the price of providing far more information to consumers through food labeling.*²⁴

In this respect, the federal government, while permitting manufacturers to capitalize on advances made in food technology, required that consumers be informed about the ingredients in their foods.

Concerns about diet and health continued throughout the 1980s, and consumers correspondingly demonstrated a willingness to purchase foods that were nutritious. As Ed Scarbrough, Director of the Office of Food Labeling at the FDA, stated:

The line from industry used to be: Nutrition won't sell food. It's price, taste, and convenience. . . . By the time we got into the 1980s, nutrition clearly was selling products. Industry recognized this and

started making claims about the food.²⁵

²⁰ Golan, *supra* note 11, at 2 tbl. 1.

²¹ Hutt, *supra* note 18, at 40.

²² *Id.*

²³ *Id.* at 40-41.

²⁵ Paula Kurtzweil, *Good Reading for Good Eating*, <http://www.fda.gov/fdac/special/foodlabel/goodread.html> (last visited Feb. 27, 2001).

While this health information was useful to consumers in selecting foods toward a nutritious diet, companies began to make claims that consumers questioned.²⁶ The need for understandable and credible nutrition information was strengthened when the U.S. Surgeon General and the National Research Council each issued reports at the end of the 1980s finding that nutrition is linked to chronic diseases.²⁷

In response, the FDA and FSIS began investigating the possibility of expanding the food label to include nutrition information, and issued proposals for mandatory nutrition labeling for processed foods.²⁸ In 1990, Congress responded by passing the Nutrition Labeling and Education Act (NLEA) which required producers to include standard nutrition information on labels.²⁹ Under NLEA requirements, most foods³⁰ must have a label providing information on the product's calories, calories from fat, total fat, saturated fat, cholesterol, sodium, total carbohydrates, dietary fiber, sugars, protein, Vitamin A, Vitamin C, calcium, and iron.³¹ Congress and the FDA chose this nutrition information because they address today's health concerns.³² The NLEA also mandated the use of serving sizes on labels that are customarily consumed and . . . expressed in a common household measure³³ in order to make nutritional comparisons of similar products easier.³⁴ Congress gave the Secretary of Health and Human Services, and thus the FDA, the authority to require other nutrition information if such information will assist consumers in maintaining healthy dietary practices.³⁵

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ Nutrition Labeling and Education Act of 1990, Pub. L. No. 101-535 (1990).

³⁰ The NLEA exempts some food from these labeling requirements: (1) foods served for immediate consumption, as in cafeterias, (2) ready-to-eat foods, such as those provided by a bakery, (3) food shipped in bulk, (4) medical foods, (5) plain coffee and tea, (6) foods produced by qualifying small businesses, (7) game meats, (8) restaurant food, as long as no health claim is made, and (9) infant formula. FDA, *The Food Label*, FDA Backgrounder (May 1999), <http://www.cfsan.fda.gov/~dms/fdnewlab.html> [hereinafter *The Food Label*]; Kurtzweil, *supra* note 25. The NLEA also does not cover meat and poultry products, but the U.S. Department of Agriculture requires similar labeling to that set out in FDA's rules. *The Food Label*. The NLEA also exempts some raw fruits and vegetables, but only if at least 60% of retailers provide nutrition information voluntarily. *Id.*

³¹ *The Food Label*, *supra* note 30; 21 U.S.C.A. § 343(q)(1).

³² *The Food Label*, *supra* note 30.

³³ 21 U.S.C.A. § 343(q)(1)(A).

³⁴ *The Food Label*, *supra* note 30.

³⁵ 21 U.S.C.A. § 343(q)(1); *id.* § 343(q)(2).

Equally significant, Congress also gave the FDA the authority to require information be removed from labels if such nutrient information is not necessary to assist consumers in maintaining healthy dietary practices.³⁶ For example, labels of foods intended for consumption by children under the age of two (except for infant formula) may not contain information on fat in order to prevent parents from wrongly assuming that infants and toddlers should restrict their fat intake, when, in fact, they should not.³⁷ Finally, under the NLEA, manufacturers also were given the option of making FDA-approved health claims, such as claiming that a food high in calcium may reduce one's chances of getting osteoporosis.³⁸

As David Kessler, then FDA Commissioner explained, The new food label is an unusual opportunity to help millions of Americans make more informed, healthier food choices.³⁹ In order to assist consumers' understanding of the nutrition labels, the FDA and USDA began a labeling education campaign.⁴⁰ Recognizing that the food label of the future will have more information and be more complicated, the FDA argued that the food label's usefulness will be diminished unless consumers are taught what to do with the information.⁴¹ The FDA and FSIS also believed that the mandatory food labels would provide more food companies with an incentive to improve the nutritional quality of their products.⁴² In this way, food labels under the NLEA provide consumers with more information to choose healthier foods, and producers may seek to produce healthier foods to promote their products. The current food labels thus serve to inform consumers through mandatory disclosure requirements, to provide for fair competition through uniform rules, and to meet a social objective through improved nutrition.

³⁶ 21 U.S.C.A. § 343(q)(2)(B).

³⁷ *The Food Label*, *supra* note 30.

³⁸ *Id.*

³⁹ Kurtzweil, *supra* note 25.

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² *Id.*

B. Current Environmental-labeling Policies

In some respects, this proposal for environmental labeling of food products arises from similar circumstances and goals. The 1990 Earth Day catalyzed an increasing environmental awareness and demand that consumer goods be produced in a more environmentally sound way.⁴³ Marketers began to realize that they could sell products based on the environmental claims that they made. One advertising study in 1990, for example, found that 89% of polled consumers would choose a product marked environmentally safe, and 82% would pay more for such products.⁴⁴ The environmental impacts of food production methods were also increasingly realized. Between 1992 and 1997, the amount of certified organic cropland in the United States more than doubled,⁴⁵ as sales of organic food have increased twenty percent per year since 1990.⁴⁶ Other campaigns, such as dolphin-free tuna and free-range chicken served to promote products that were produced through more environmentally benign methods. Producers who could meet these environmental claims would make them in order to market their products, much as producers would promote health claims associated with their foods. Environmental claims, like health and nutrition claims, have been susceptible, however, to confusion and unscrupulous business practices. Consumers have exhibited confusion over environmental terminology,⁴⁷ while manufacturers, hoping to sell more products, have made claims that could not be substantiated.⁴⁸

More recent events have called into question the safety of some food production practices, and have therefore highlighted consumers' need for information concerning the negative environmental and ethical aspects of

⁴³ John M. Church, *A Market Solution to Green Marketing: Some Lessons from the Economics of Information*, 79 Minn. L. Rev. 245, 250-51 (1994) (Earth Day 1990 represented an environmental awakening for the mainstream public. Thereafter, ecology became a concern no longer reserved only for a few activists. According to a post-Earth Day Gallup Report, seventy-six percent of American consumers consider themselves 'environmentalists.' American consumers now consistently rank environmental protection as one of our country's most important issues and have expressed their concern for the environment by desiring to purchase products they perceive as safer for the environment.) (footnotes omitted).

⁴⁴ Brett B. Coffee, Note, *Environmental Marketing After Association of National Advertisers v. Lungren: Still Searching for an Improved Regulatory Framework*, 6 Fordham Envtl. L.J. 297, 298 & n.6 (1995).

⁴⁵ Golan, *supra* note 11, at 26.

⁴⁶ Kenneth C. Amaditz, *The Organic Foods Production Act of 1990 and Its Impending Regulations: A Big Zero for Organic Food?*, 52 Food & Drug L.J. 537, 537 (1997).

⁴⁷ Coffee, *supra* note 44, at 299.

⁴⁸ *Id.* at 298-299.

food production. In Europe, for example, the mad cow disease epidemic was believed to be caused by feeding cattle animal feed that had been contaminated with bovine spongiform encephalopathy (BSE), and then grossly magnified by the ethically questionable practice of feeding cattle meal consisting of cow parts.⁴⁹ Additionally, the concern over the use of genetically modified foods has spread to the United States, particularly since StarLink corn, deemed unfit for human consumption, made its way into taco shells and other products.⁵⁰ American consumers have expressed heightened concerns over genetically modified foods, with at least 80% polled supporting mandatory labeling.⁵¹ Over half of the individuals polled stated that they would avoid purchasing GM foods.⁵² Other food and industrial practices continue to threaten our food supply with chemical contaminants, such as pesticides, PCBs, mercury, and dioxins.⁵³ This information, however, since negative is not voluntarily placed on food labels, much as high-fat food products did not voluntarily disclose their fat content prior to mandatory nutrition labeling.⁵⁴

Thus, the environmental labeling issue is presently at a similar juncture once faced by nutrition labeling ad-

⁴⁹ See Pollan, *supra* note 8; FDA, *BSE: Background, Current Concerns, and U.S. Response*, FDA Backgrounder (Mar. 1, 2001), <http://www.fda.gov/opacom/backgrounders/bse.html>.

⁵⁰ See Pollan, *supra* note 8; Julie Vorman, *Majority of Americans Favor Biofood Labels* (Feb. 23, 2001), http://www.biotech-info.net/favoring_labels.html.

⁵¹ Center for Food Safety, *supra* note 9; Office of Scientific Analysis and Support, Center for Food Safety & Applied Nutrition, *Report on Consumer Focus Groups on Biotechnology* (Oct. 20, 2000), <http://www.cfsan.fda.gov/~comm/biorpt.html> (Virtually all participants said that bioengineered foods should be labeled as such.) [hereinafter *Report on Consumer Focus Groups on Biotechnology*]. A survey conducted by the International Food Information Council Foundation, an organization funded by food and beverage companies, found that Americans had mixed feelings on GM labeling, but a growing number of consumers were beginning to side with critics who argue that GM foods should be clearly labeled as GM. Vorman, *supra* note 50.

⁵² Center for Food Safety, *supra* note 9.

⁵³ *PCB Contamination of Food*, <http://www.ace.orst.edu/info/extoxnet/faqs/foodcon/pcb.htm> (last visited Mar. 10, 2001) (noting that chronic exposure to PCBs can lead to disrupted hormone balances, reproductive problems, and cancer, and stating that food can be a major source of PCB exposure, usually from fish and animal fat.); Center for Food Safety & Applied Nutrition, FDA, *Consumer Advisory: An Important Message for Pregnant Women and Women of Childbearing Age who may become Pregnant about the Risks of Mercury in Fish* (Mar. 2001), <http://vm.cfsan.fda.gov/~dms/admehg.html>; *Pesticide Program: Residue Monitoring 1999*, *supra* note 4; Schechter, *supra* note 5, at 1 (Food, especially meat, fish, and dairy products, constitutes the primary proximate source of dioxins (PCDDs), dibenzofurans (PCDFs), and PCBs for the general population).

⁵⁴ Alan D. Mathios, *The Impact of Mandatory Disclosure Laws on Product Choices: An Analysis of the Salad Dressing Market*, 43 J.L. & Econ. 651, 659-660 (2000) (finding that high-fat salad dressings were not labeled prior to the NLEA).

vocates. Consumers are interested in having more environmental information concerning their food choices, either because of issues of conscience or safety. Producers may want to promote their products as being environmentally friendly, but confusion and credibility problems persist. Moreover, requiring environmental labeling, both positive and negative, could serve a social objective of aiding consumers in making informed choices and providing an incentive to the food industry to improve its production practices. In Denmark, some supermarkets now provide consumers with the ability to scan the barcodes on meat and poultry packages and obtain pictures of the farm where the animal was raised and information on what the animal was fed and on its living conditions.⁵⁵ In describing this information resource, the *New York Times Magazine* writer correctly asked readers to [i]magine how quickly this sort of transparency would force a revolution in our food chain.⁵⁶

Despite consumer interest in environmental labeling, and the need for uniform standards for such labels, the federal government has decided not to require that this category of information be labeled. The implementing agencies have basically drawn a line between the product and the process behind the product. This approach stems from the FDA's interpretation of the FD&C Act. Under the FD&C Act, a food is considered misbranded if its labeling is false or misleading in any particular.⁵⁷ In determining whether a label is misleading, the statute directs the agency to consider the producers' representations made or failed to be made concerning facts (1) material in light of [the producer's] representations or (2) material with respect to the consequences which may result from use of the article.⁵⁸ The FDA considers information to be material if it affects the product or the safety of the product, but does not consider the production process to be material.⁵⁹ For example, the FDA has taken this approach with biotechnology⁶⁰ and irradiation,⁶¹

⁵⁵ Pollan, *supra* note 8.

⁵⁶ *Id.*

⁵⁷ 21 U.S.C.A. § 343(a).

⁵⁸ 21 U.S.C.A. § 321(n).

⁵⁹ *Guidance for Industry*, *supra* note 10.

⁶⁰ *Id.*

⁶¹ See Goldman, *supra* note 7, at 724-25 (discussing that the FDA policy for irradiation only calls for labeling of the

requiring labeling only if the process alters the food product in a significant way. The problem with this approach however is that the process itself may actually be material to consumers. Consumers have expressed to the FDA that they view processes, including biotechnology, and pesticide, hormone, and antibiotic use as technological innovation[s] that [were] introduced mainly for the sake of producers/distributors, with little apparent benefit to the consumer.⁶² The approach also differs from the FDA's previous stance regarding the trade-off between advances in industrial development and the consumer's right-to-know.⁶³ Moreover, drawing a line between the process and the product, particularly with biotechnology, may not always be an easy or even defensible task.

The federal government has taken basically the opposite stance on contaminants that may become part of the food product itself. While contaminants, such as pesticides or PCBs, do become ingredients of the food, and thus are not solely reflective of a process, these contaminants are not required to be labeled on the product's package. Pesticides that are applied after harvest are required to be labeled on shipping containers, but not on the produce counter where consumers view the product.⁶⁴ Other contaminants, such as PCBs, are not required to be labeled. Instead, contaminants, deemed unavoidable, are subject to tolerances and regulation, rather than labeling.⁶⁵

In this respect, consumers have not been presented the full information about what is contained in their food product, or what processes were used to make the product. Given the debates over GM foods, and recent scares such as mad cow's disease, perhaps this is an appropriate moment to question the lack of transparency of the food production industry. Since consumers are also citizens, they should be provided with more in-

process if it causes changes in the flavor or shelf life of the food).

⁶² *Report on Consumer Focus Groups on Biotechnology*, *supra* note 51.

⁶³ *See* Part I.A, *supra* (quoting Peter Barton Hutt's observation of the FDA's approach in the 1970s: The food industry was thus free to pursue the benefits of modern food technology, but only at the price of providing far more information to consumers through food labeling.).

⁶⁴ 21 U.S.C.A. § 343(l); Goldman, *supra* note 7, at 744-45.

⁶⁵ *See, e.g.*, FDA, Industry Activities Staff Booklet, *Action Levels For Poisonous Or Deleterious Substances In Human Food And Animal Feed* (March 1998), <http://www.cfsan.fda.gov/~lrd/fdaact.html> (Action levels and tolerances represent limits at or above which FDA will take legal action to remove products from the market. Where no established action level or tolerance exists, FDA may take legal action against the product at the minimal detectable level of the contaminant.).

formation to make informed choices about the foods they eat and about the production methods the food industry uses. Such regulation could also help to ensure fair competition between producers, so that some producers do not unfairly benefit from confusing or inadequate environmental claims. Finally, mandatory labels can help to meet a current social goal: improving food production methods and the environment.

II. The Citizen as Shopper: Requiring Environmental Food Labels May Improve Consumer Choice, Producer Behavior, and the Environment

Environmental information should be included on food labels. Principally, such labels should be provided on food products to provide consumers with information in order to assist them in purchasing products that accord with their environmental and safety concerns. Because the market does not provide sufficient incentives for producers to provide this information, and cannot itself enforce uniform standards, the federal government should step in to require and regulate the labeling of environmental information on foods. Such regulation should improve the uniformity and credibility of the information labeled, as well as provide for fair competition between producers. Moreover, this transparency may force producers to improve their manufacturing practices or better educate the public about them, to the potential benefit of the environment.

A. Consumers' Right-to-Know: Overcoming Asymmetric and Imperfect Information

In 1978, the FDA, USDA, and Federal Trade Commission (FTC) held hearings in different locations throughout the country soliciting views of consumers on food labeling.⁶⁶ Recognizing that since the 1938 FD&C

⁶⁶ 44 Fed. Reg. 75,990 (Dec. 21, 1979).

Act significant changes [had] occurred in the food industry, in Americans' attitudes toward the food supply, and in their dietary habits, these agencies set out to develop an overall labeling strategy that will provide consumers with the information they want and need about today's foods.⁶⁷ These agencies recognized that consumers had a right-to-know the information they desired about their foods.⁶⁸ Such information was especially crucial at that time, the agencies found, since technological innovations in food processing made it difficult for consumers to judge a product's actual contents from its appearance.⁶⁹ The FDA, USDA, and FTC agreed to review their food labeling regulations, and seek additional congressional authorization, to provide consumers with the information they wanted on food labels.⁷⁰

Today, consumers' need and desire for more information concerning the food they eat is as important. New technological innovations in food manufacturing and processing, especially the use of biotechnology, have challenged the clarity of the current food labels. During spring 2000, the FDA conducted a number of focus groups to investigate consumers' knowledge of biotechnology, and reactions to different labeling schemes.⁷¹

The FDA found that:

Virtually all participants said that bioengineered foods should be labeled as such so that they could tell whether a given food was a product of the new technology. What is striking about participants' initial discussion of their reasons for wanting biotechnology labeling is the widespread perception that the information they want the label to provide is how the food product was produced, rather than the compositional effect of the process on the food product.⁷²

Other food production practices, such as pesticide and fertilizer use, may be commonly known among the buying public, but the effects of such use on individual food products are not. Despite this desire for knowledge, the FDA has surprisingly taken the opposite approach from its earlier consumer's right-to-know

⁶⁷ *Id.* at 75, 991.

⁶⁸ *Id.* at 75,992.

⁶⁹ *Id.*

⁷⁰ *Id.* at 75,990-91.

⁷¹ *Report on Consumer Focus Groups on Biotechnology*, *supra* note 51.

stance. After the FDA released the findings of its biotechnology focus groups, the FDA issued a Guidance for Industry making biotechnology labeling voluntary, unless such technology affected the proper naming of the food, use of the food, the nutritional quality, or introduced an allergen.⁷³

The agencies' policy choice, however, means that consumers have less information in making their own choices about food products. Because producers do not label negative aspects of their products, such as pesticide residue, consumers are not provided the information they may want to know about a product. Consumers, moreover, do not have the means to determine this information on their own. Producers with positive production methods, such as organic, may label their foods in order to promote their products, and consumers may then presume that those without such labels have negative production methods.⁷⁴ Consumers, however, are not provided sufficient information with which to compare products, if all they are given are blanket claims and no substantive information. In particular, consumers are not provided with any gradations between the products, such as differing levels of pesticide residues.⁷⁵

When the FDA, USDA, and FTC held the series of hearings in 1978 to determine what consumers wanted on food labels, they discovered that most consumers expressed an interest in ingredient labeling.⁷⁶ Some people wanted to know the ingredients so they could avoid consuming certain ingredients, and others felt that they simply had a right to know what was in the food.⁷⁷ A number of people indicated that they had concerns with some of the ingredients being used in foods, with a large number stating that they were concerned about the apparent proliferation of substances that may pose a health risk.⁷⁸ While the focus of a number of these comments was on ingredients such as artificial flavors and colors, these statements reflect that consumers are interested in knowing what they are eating. Consumers should know that their foods

⁷³ *Guidance for Industry*, *supra* note 10.

⁷⁴ Mathios, *supra* note 54, at 652-53 (discussing the theory of unraveling, where all but the worst firms disclose, and consumers assume the worst of those who fail to disclose).

⁷⁵ *Cf. id.* at 660 (the evidence also indicates that there is a large variation in fat content among products that did not have a nutrition label prior to the NLEA).

⁷⁶ 44 Fed. Reg. 75,993.

⁷⁷ *Id.* at 75,997.

⁷⁸ *Id.* at 75,993.

include pesticides, PCBs, mercury, or genetically modified organisms, just as they should know about sugar, FD&C Red No. 40, and caffeine.

Moreover, labeling is appropriate where there are uncertainties about the effects of some ingredients or processes on human health or the environment. The USDA, for example, has noted that imperfect information:

could arise when the long-term health effects of a food or food attributes are unknown, or scientific opinions differ about the health consequences of consumption. In these cases, the government might require full disclosure of even preliminary or contradictory information to provide consumers with the fullest information possible.⁷⁹

When labeling of such information is not required, consumers may not be afforded the freedom of choice in avoiding ingredients or processes that they would not support. For example, in the FDA's recent Guidance on labeling of genetically modified foods, the agency determined that mandatory labeling should not be implemented since the agency had not been presented with any data or other information regarding consequences to consumers from eating [genetically modified] foods.⁸⁰ Though the agency recognized that many people are concerned with the unknown and possible long-term health consequences of GM foods, the FDA felt these concerns were insufficient to mandate labeling.⁸¹ The problem with this approach, however, is that the FDA is insulating an industry from consumer review, and keeping consumers from making their own choices about what they consider safe.⁸² Since even the FDA cannot be certain that the long-term use

⁸⁰ *Guidance for Industry, supra* note 10.

⁸¹ *Id.*

⁸² *Cf.* 44 Fed. Reg. 76,008. In 1979, the FDA and USDA faced a similar choice between requiring the disclosure of another food technology: imitation foods. As the agencies reflected:

Another aspect of the problem concerns innovation. There is nothing in the FD&C Act, the FMI Act, or the PPI Act that explicitly mentions the government's role in food innovation. . . . Various groups in industry as well as consumers stand to gain or lose depending on governmental policies affecting food innovation. The producers of new and modified products obviously have an interest in governmental policies that make introduction and marketing of these products as easy as possible, while producers of traditional foods may have their markets reduced by these kinds of policies. Some new and modified foods may have a significant health or price advantage over currently available products, while others may have health and cost disadvantages. Since consumers may stand to gain from one type of new food and lose from another, *it is important that*

of biotechnology is safe, consumers should be given the opportunity to decide for themselves what industrial processes they would like to support. The ability of consumers to vote with their dollars should extend even to the industrial processes that have been used for some time, including pesticide and fertilizer use.

Commentators have presented a number of counter-arguments to the right-to-know position. One counter-argument is that if too much information is provided on a food label, consumers will cease to benefit from the information provided on the label. This argument is often made about the warning labels provided with medicines, where, because of the length and number of warnings, consumers do not understand and discount the information provided. However, the FDA and USDA in the past have conducted studies to determine the efficacy of certain labeling formats,⁸³ and a similar approach to providing environmental information could be taken. Part III of this paper proposes a label format to demonstrate that environmental information can be presented in an easy-to-read way. Moreover, an additional benefit of mandatory, regulated environmental labeling is that the federal government can achieve a level of uniformity that has thus far escaped the grocers' shelves. If labeling on products can be done in a consistent format, consumers will learn more about their products. When the FDA was investigating nutrition labeling of foods, a number of consumers found the U.S. Recommended Daily Allowances to be confusing.⁸⁴ Since this time, however, the FDA has worked to educate the public about food labels.⁸⁵ The FDA, along with the Environmental Protection Agency (EPA) and private groups, could also educate the public on environmental terminology that affects their food supply.

Another frequent argument against mandatory food labeling is the cost of the labeling scheme. Additional labeling requirements will impose additional costs on the producers, which could then be passed on to the

they have a basis for perceiving the difference.

Id. (emphasis added).

⁸³ See, e.g., *Report on Consumer Focus Groups on Biotechnology*, *supra* note 51 (reporting on consumer responses and understanding of various GM labeling schemes).

⁸⁴ 44 Fed. Reg. 76,001.

⁸⁵ Kurtzweil, *supra* note 25.

consumers. As some studying the issue have found, labeling may produce a 'reverse Robin Hood effect' in which the poor and less educated pay for information they cannot use and do not want.⁸⁶ Labeling requirements impose costs by requiring (1) certification, such as for organic farms,⁸⁷ (2) segregation, such as of non-GM from GM foods,⁸⁸ (3) information, such as nutrition information,⁸⁹ and/or (4) monitoring, such as verifying the use of dolphin-safe fishing nets.⁹⁰ While producers, and therefore consumers, may incur additional costs due to mandatory labeling, green producers and consumers seem to bear these costs already. Organic foods sell at a price premium because the costs of production are higher, including processing, segregation, and transportation costs.⁹¹ Producers who do not chose green production methods may then get an unfair advantage since they do not bear the costs of their negative externalities on the environment, nor do they bear the costs of labeling such environmental choices on their food products. While more research would be needed on this point, it seems unfair to discuss the additional costs of mandatory environmental labeling, without considering whether such costs actually serve to level the playing field.⁹² Finally, manufacturers have also made a claim under the First Amendment against the consumer's right-to-know. At least one court has found that producers have a right not to speak under the First Amendment. In *International Dairy Foods Association v. Amestoy*,⁹³ the Second Circuit struck down Vermont's statute requiring labeling of the use of the hormone recombinant bovine somatotropin (rBST).⁹⁴ The court found that Vermont had not asserted a substantial state interest to warrant the required labeling, and specifically

⁸⁶ Golan, *supra* note 11, at 16 (citing Michael B. Mazis, *An Overview of Product Labeling and Health Risks*, in *Product Labeling and Health Risks* (eds. Louis A. Morris et al., 1980)).

⁸⁷ Golan, *supra* note 11, at 28 (stating that all organic farmers with sales over \$5,000 will need to pay for certification to label their products as organic, and predicting that even with the small business exemptions, some small organic farms and some small certifiers may exit the industry and small operations may be discouraged from entering the industry).

⁸⁸ Teel, *supra* note 13, at 654; Golan, *supra* note 11, at 34.

⁸⁹ Golan, *supra* note 11, at 20.

⁹⁰ *Id.* at 25 (noting that the government bears the substantial costs of having an observer on each boat).

⁹¹ *Id.* at 26.

⁹² Moreover, if the agencies are concerned with pricing some businesses out of the market, the agencies could consider a small business exemption from labeling requirements, as was done under the NLEA. See Kurtzweil, *supra* note 25.

⁹³ 92 F.3d 67 (2d Cir. 1996); Matthew Franken, Comment, *Fear of Frankenfoods: A Better Labeling Standard for Genetically Modified Foods*, 1 Minn. Intell. Prop. Rev. 153, 163 (2000).

⁹⁴ Franken, *supra* note 93, at 163-64.

found that consumer curiosity alone is not a strong enough state interest to sustain the compulsion of even an accurate, factual statement.⁹⁵ While this holding is limited to the Second Circuit, the potential import of this holding is rather disturbing. A producer should bear a duty to inform its customers about the product it is selling. If the producer is not prepared to inform the consumers about its product, then perhaps the producer should not sell anything it is not prepared to explain.

One answer to the free speech problem, some have argued, is to allow voluntary labeling and let the market decide.⁹⁶ If consumers really do value the information enough, they say, then producers will promote their products accordingly. Those who have a good to offer will promote it, and those who do not offer the good the consumers seek will be revealed by negative implication.⁹⁷ This free-market approach, however, assumes that consumers will know enough to demand the information in the first place. This model also assumes that those with a good to sell will voluntarily label the information. What is happening currently, however, is that those who do have a good to sell are being limited by the FDA in what they can say, because the FDA, and conventional agribusiness, are concerned that these products will begin to seem superior to foods that are not so labeled.⁹⁸ The FDA, for example, has required producers labeling their products as being derived from cows that were not treated with recombinant bovine growth hormone (rBGH) to qualify the statement by saying that no difference can be shown in milk between rBGH treated and untreated cows.⁹⁹ Such a requirement may then counterbalance the efficacy of the environmental promotion in the first place. Thus, on the one hand, the conventional industry is privileged not to speak about its use of hormones and other methodologies, though residues may appear in the food itself. On the other hand, companies that choose to

⁹⁵ *Id.*

⁹⁶ *See generally id.* at 169-75; Goldman, *supra* note 7.

⁹⁷ Mathios, *supra* note 54, at 652-53.

⁹⁸ *Guidance for Industry, supra* note 10; Pollan, *supra* note 8.

⁹⁹ *See* Kirsten S. Beaudoin, *On Tonight's Menu: Toasted Cornbread with Firefly Genes? Adapting Food Labeling Law to Consumer Protection Needs in the Biotech Century*, 83 Marq. L. Rev. 237, 265-66 (1999).

promote their products on environmental or ethical grounds are being told they must limit their claims so as not to seem superior. In the end, there is no wonder that the consumer is left blinking incredulously in the grocers' aisles.

B. Government Mandated Labels Can Improve the Credibility and Uniformity of the Claims, and Protect Fair Competition

Mandatory labeling can also address the current problems of consumer confusion and incredulity based on voluntary producer claims. Voluntary labeling can confuse consumers, since manufacturers may use terms differently, or use different terms without adequately defining them. For example, before the Organic Foods Production Act was passed, consumers were faced with a dizzying array of foods labeled 'ecologically grown,' 'natural,' 'wild,' and 'residue free.'¹⁰⁰ Manufacturers may also make false or misleading claims, and, accordingly, consumers are then skeptical of manufacturers' own assertions.¹⁰¹ Mandatory labeling schemes can help improve the uniformity, and therefore comprehensibility, of the information on the labels.¹⁰² Moreover, since the labels would be required by law, the federal government would have enforcement authority over the environmental information on the labels, improving the credibility of the claims. While it is true that such an enforcement responsibility will put heavy demands on the time and resources of the enforcing agencies, these agencies could consider accrediting third-party agents with whom to share these enforcement duties.¹⁰³

Such labeling requirements may also help to ensure fair competition between food producers. Once consumers

¹⁰⁰ Amaditz, *supra* note 46, at 537.

¹⁰¹ Coffee, *supra* note 44, at 298 (finding that advertising claims for environmental products were often false or misleading); Golan, *supra* note 11, at 9 (Consumers may question the validity of the information provided by firms...). *See Report on Consumer Focus Groups on Biotechnology, supra* note 51 (Because [GM-free] claims were seen as largely promotional in intent, they were not held to very high standards, in the sense that a certain amount of puffery and advocacy associated with the claim would be tolerated because it is easily discounted.).

¹⁰² *See* Amaditz, *supra* note 46, at 540 (discussing need for uniform organic standards).

¹⁰³ *See* Golan, *supra* note 11, at 15.

understand the labels under the mandatory, uniform rules, producers may no longer be able to benefit from consumer confusion over environmental terminology. More importantly, because environmental labeling would require the disclosure of negative product effects and production methods, consumers will be able to compare producers and their products more thoroughly. Green producers will then no longer bear the sole burden of environmental labeling, since all producers will be required to label the same types of information regarding their products and production methods.

C. Mandatory Environmental labels May Encourage Food Producers to Improve their Products and Production Practices

Another reason for requiring environmental labels on food products is that such mandatory disclosures may provide the food industry with an incentive to improve their products and production methods. Because manufacturers will be forced to make their products and production practices transparent, manufacturers may alter their behavior to retain or gain their marketability.¹⁰⁴ This argument does, in part, assume that consumers will purchase enough of the environmentally positive goods to make the producers want to change.¹⁰⁵ Some have argued that mandatory labeling will not necessarily bring about a social result, because different consumers will have different preferences, such as price, taste, or convenience.¹⁰⁶ This response may be limited, however, since uniform, mandatory labeling may expose the negative aspects of products that had been able to remain hidden so far. For example, in a study conducted on sales of salad dressings before and after the NLEA, the study found that before the NLEA's mandatory nutrition labeling, salad dressings with higher levels of fat were less likely to disclose the fat content on the label.¹⁰⁷ After

¹⁰⁴ Pollan, *supra* note 8.

¹⁰⁵ Golan, *supra* note 11, at 15 (arguing that Labels may be a poor means of addressing problems of externalities and advancing social objectives. . . Even if certain individuals alter their behavior to completely reflect externality costs, the fact that others do not means that the objective will probably not be met. For example, while some consumers may purchase only free-range chickens, the goal of more humane treatment of chickens will not be achieved so long as most consumers continue to purchase coop chickens.).

¹⁰⁶ *Id.*

¹⁰⁷ Mathios, *supra* note 54, at 659-60.

the NLEA's mandatory nutrition information, of those high-fat dressings that had not voluntarily labeled the fat content, the ones with the highest fat content lost market share after the NLEA.¹⁰⁸ Thus, the study found that the [m]andatory nutrition labeling appears to have had an impact on consumer food choices in the salad dressing market.¹⁰⁹ Particularly important, the study believed that mandatory labeling may be more likely to affect product choice when a negative characteristic is the relevant feature.¹¹⁰

In this respect, manufacturers are currently benefiting from their ability to avoid disclosing all ingredients in their products or their methods of production, leaving consumers unable to make completely informed choices. If manufacturers were forced to disclose environmental externalities and contaminants, then, much as in fat content, perhaps consumers would begin to move away from these products. Manufacturers would then face the choice of changing their production methods or losing customers.¹¹¹ Moreover, if all producers must label this information, then perhaps the prices of the products could take into account the externalities of producing the product.

Thus, consumers have a right-to-know more about the production methods used to produce their foods, as well as what ingredients (including contaminants) become part of their food. Producers should not be allowed to hide the negative aspects of their products or processes behind the First Amendment. Instead, producers should be required to inform consumers about their products in order to be able to sell them. Mandatory labeling requirements will provide consumers with uniform labels that allow them to make comparisons between producers and products more easily. These labeling requirements may therefore also help level the playing field between producers. Finally, mandatory environmental labeling requirements may provide producers with an incentive to improve their production methods and products, which could benefit the

¹⁰⁸ *Id.* at 669-70.

¹⁰⁹ *Id.* at 671-72.

¹¹⁰ *Id.* at 675.

¹¹¹ To keep manufacturers from being punished for environmental contaminants that they had no control over, manufacturers can qualify the contaminant list by indicating which ones come from the environment. See Part III.A.2. and III.B. for examples of such labels.

environment.

III. Proposed Environmental Food Labels: Content and Format

In order to achieve these goals, food labels should include at least three additional categories of information. First, manufacturers should be required to state whether their product is genetically modified or contains genetically modified ingredients. Second, producers should disclose any environmental or chemical contaminants that appear in the food product. Third, producers should provide a summary of their production methodology. In keeping with the goal of consumer information, these labels should apply to all food products, including produce and meat products. As some of this information may require additional congressional authorization, this proposal is addressed to the federal government as a whole.

A. Content of the Food Labels

1. Genetically Modified Foods

The FDA and USDA are given the authority to require some information to be labeled on food products. Under Section 403 of the FD&C Act, a food is considered misbranded if the label is false or misleading in any particular.¹¹² Section 201(n) of the FD&C Act provides that labeling may be considered misleading depending on:

the extent to which the labeling or advertising fails to reveal facts *material* in the light of [] representations or *material* with respect to the consequences which may result from the use of the article to which the labeling or advertising relates. . . .¹¹³

The FDA has taken the position that genetic modification is not a material fact that must be generally

¹¹² 21 U.S.C.A. § 343; *Guidance for Industry, supra* note 10.

disclosed.¹¹⁴ The FDA only requires biotech labeling if (1) the genetically modified food is significantly different from its traditional counterpart to the extent that the common or usual name of the food would be misleading, (2) there are consequences to using the food, (3) the GM food has a significantly different nutritional property, or (4) the new food includes an allergen.¹¹⁵ The FDA has historically viewed only attributes of the food itself to be material, and not the process behind the food.¹¹⁶

The FDA's policy, however, overrides what a number of consumers state that they want to know about a food product. Surely part of the agency's assessment of materiality should include whether the information is desired by the consuming public. The agency will require GM labeling if the food product significantly differs from a traditional food or if there are consequences to using the food. The FDA policy, however, does not elaborate on what significantly different means, providing an inadequate standard for determining what GM foods should be labeled. By way of illustration, imagine a ship called the Ship of Theseus.¹¹⁷ The ship, made of wood, consists of a number of planks. If one of the planks becomes damaged, it would be replaced by another wooden plank. Most would probably agree that the ship is still the Ship of Theseus even though one of its original planks had to be replaced. Most would probably agree that if two planks had to be replaced, it would still be the Ship of Theseus. What is not clear, though, is how many planks could be replaced before it was perceived as no longer the original ship.

Applying this analogy to foods, however, demonstrates that alterations in genetic material may produce an inherently different product, no matter the supposed "significance" of the modification. This result occurs because each of the "planks," or genes, are the essential constituent parts of the item, and each has different roles. In the Ship of Theseus example, it had been thus far supposed that each of the planks was equally

¹¹⁴ *Guidance for Industry, supra* note 10.

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ The Ship of Theseus is a philosophical example often used to explore whether an object is more than the sum of its parts. *See, e.g.*, <http://www.as.wvu.edu/phil/theseus.htm> (providing overview of this metaphor).

important to the Ship, and that each of the planks would be replaced by another wooden plank. Suppose instead that one of the planks of the Ship was replaced with steel, if technically possible. To the agency registering the ship, it is still the Ship of Theseus. To the captain who loved his wooden ship, Theseus is simply not the same. Thus, while it may be true that the whole is greater than its constituent parts, different participants may value some of the parts differently from other parts, to the extent that how one would define the whole, the Ship of Theseus or not, depends on one's perspective. The FDA policy is therefore also problematic because it leaves to the agency the decision of whether something is significantly different, rather than letting the consumer make that choice himself. Whether a food product or ingredient has been genetically modified is information that consumers should be provided so that they can make their own value choices. Even researchers at the USDA recognized that, among the regulatory choices agencies have (such as bans, taxes, and education programs),¹¹⁸ mandatory labeling is particularly suited to areas where there is no political consensus yet about the appropriate regulatory response.¹¹⁹ Congress may ultimately agree with consumers; in the last Congress, both the Senate and House introduced bills finding that the use of genetic modifications was material, and that consumers have the right to know about GM foods.¹²⁰

Moreover, the Ship of Theseus example also somewhat demonstrates that it is difficult for the agency to draw a line between the process and the product. The Ship of Theseus underwent the process of repairs, but each of which affected the Ship itself. Genetic engineering is not of course entirely analogous to "repairs," since biotechnology is often used to "improve" the food product, such as to make it resistant to herbicides, or to enhance its nutritional quality. The FDA, however, has taken the position (1) that the process does not need to be labeled, and (2) that the genetic material becomes an inherent part of the plant itself, whether by

¹¹⁸ Golan, *supra* note 11, at 17.

¹¹⁹ *Id.* at 18.

¹²⁰ H.R. 3377, 106th Cong., § 2 (1999); S. 2080, 106th Cong., § 2 (2000).

traditional breeding or newer biotechnology, and inherent parts do not need to be labeled.¹²¹ These inherent parts are not truly inherent since they are modified through biotechnology. The process of genetic engineering is therefore itself significant. Biotechnology differs from traditional breeding techniques in a number of ways, both in its methodology and effects on food and the environment.¹²² Many are concerned that biotechnology presents unknown consequences to human health or the environment, and that it should be used with great caution. It therefore seems problematic to subject people to biotechnology and biotech foods without their informed consent. Given the uncertainty of this new technology, consumers should be given a choice whether they want to participate in this new food experiment. Labeling would allow consumers to make this choice.

If GM foods should be labeled, the next question is the format and content of such label. If a food is produced with biotechnology or contains GM ingredients, then the label should include: (1) a statement saying Genetically Modified,¹²³ and underneath, (2) a statement indicating how and why the food or ingredient was modified, such as This tomato was genetically modified to improve texture.¹²⁴ If the producer can demonstrate that the food product was not genetically modified and does not contain GM material,¹²⁵ then the food label should read: GM-free or “Not Genetically Modified.

2. Chemical and Environmental Contaminants

While producers are required to include an ingredient list on their food products, they are not generally required to include chemical contaminants, such as pesticides, fertilizers and animal drug residues, or envi-

¹²¹ Goldman, *supra* note 7, at 738.

¹²² Franken, *supra* note 93, at 155-60.

¹²³ This idea is taken from the congressional bills, H.R. 3377, S.2080, *supra* note 120, but uses genetically modified rather than genetically engineered.

¹²⁴ This sample statement comes from the FDA’s *Guidance for Industry*, where the FDA found that the label had to indicate that the tomato’s texture had been improved, but did not have to state that the improvement was made through genetic modification. *Guidance for Industry*, *supra* note 10. When the FDA conducted its focus groups on GM labeling, however, it found that consumers wanted both a disclosure of the use of GM material and why it was used. *Report on Consumer Focus Groups on Biotechnology*, *supra* note 51.

¹²⁵ The producer will need to demonstrate that, based on current detection levels, that the product contains no more than .1 percent of genetically modified material. The bills introduced in the last Congress found that genetically modified material could be detected in food products containing as little as .1 percent of GM material. H.R. 3377, § 2; S.2080, § 2, *supra* note 120. The producer should have to meet stricter GM-free standards as detection levels improve.

ronmental contaminants, such as PCBs, dioxins, and mercury. Instead, these chemicals are regulated by the FDA, USDA, and EPA. These agencies have set tolerance levels for some chemicals, such as pesticides, if use of the chemical will result in residues in the food.¹²⁶ The FDA and USDA then monitor and enforce the levels of these chemicals in food products, and meat and egg products, respectively.¹²⁷ If the food product exceeds the tolerance level, the enforcing agency can remove the product from the market.¹²⁸ While this is an oversimplified overview of how these agencies regulate chemicals in food, the point to realize is that these chemicals are subject to regulation but not labeling requirements.

Because these chemicals are not required to be labeled, consumers do not know of some of the ingredients in their foods. Nor do consumers know whether some foods contain more of a contaminant than others. While the FDA may issue advisories, as it recently did to warn consumers about mercury levels in some fish,¹²⁹ consumers are not provided with the full picture of the contaminants they consume on a daily basis. The federal agencies may set tolerance levels for some contaminants, but these tolerance levels may be higher than what a consumer would want to consume. In particular, some have argued that tolerance levels rely too much on cost-benefit analysis, and not enough on the precautionary principle given the unknown long-term, cumulative effects of chemical consumption.¹³⁰ Moreover, blanket labels, such as organic are not sufficient to protect and inform consumers. Sadly, some organic foods do contain pesticide residues, either from former uses of the soil or other contamination.¹³¹ Under the Organic Foods Production Act of 1990, organic foods may in fact contain some level of pesticide residue.¹³²

¹²⁶ See, e.g., *Pesticide Program: Residue Monitoring 1999*, *supra* note 4.

¹²⁷ See *id.*

¹²⁸ See *Action Levels For Poisonous Or Deleterious Substances In Human Food And Animal Feed*, *supra* note 65.

¹²⁹ *Consumer Advisory*, *supra* note 53.

¹³⁰ See Vern R. Walker, *Some Dangers Of Taking Precautions Without Adopting The Precautionary Principle: A Critique Of Food Safety Regulation In The United States*, 31 *Env'tl. L. Rep.* 10040 (2001) (Perhaps lawmakers think that it is more reassuring to the public if they pretend that determining acceptable levels of food risk is always a purely scientific matter, instead of a management decision involving costs and benefits. But adopting the precautionary principle would mean placing a higher value on acknowledging scientific uncertainty and on transparency, and placing the burden of proof on those who would trade off protection against benefits.).

¹³¹ Amaditz, *supra* note 46, at 542.

¹³² *Id.* at 550-51, 553-54, 557.

For these reasons, chemical and environmental contaminants should be required to be included on food labels. Such a listing would improve the transparency of the food production process, as well as of the environmental impacts of our industrial processes more generally. While it may be depressing or confusing to consumers, this information could be presented in a way that would allow for comparison between products, and hopefully ignite consumer passion about cleaning up the food industry and our environment. As one potential label format, the food label could contain a listing of chemicals present in the product, along with a general explanation of what the chemical is. The amount of the chemical should be included, but could perhaps be indicated by a narrow range given the fluctuation present in some foods. For example, a product label could read:

Chemical and Environmental Contaminants	
Chemical A (pesticide)	1-3 Units ¹³³
Mercury (from the environment)	.5-1.5 Units

For chemicals that are regulated by tolerance levels, the manufacturer could add a line under the chemical stating to the effect that This product's [Chemical A] content complies with the tolerance level set by the [FDA/USDA/EPA]. Another option for listing chemical and environmental contaminants is to create an environmental report-card, which would use terms such as low or good, or another grading system. Since the interest here is in achieving greater transparency, as well as allowing greater comparison between products, a listing of the actual contaminant level as shown above would better serve these purposes.

3. Production Methods

Finally, a summary of the production methods used to produce the food should be included on the food label.

Given growing consumer interest in organic foods, as well as in how animals are raised, manufacturers should

¹³³ These units should be the volume of the chemical in the food, such as parts per million. The units should be uniform across products to aid consumer comparisons.

be required to include a brief summary of their production methods on food labels. Such information would afford consumers the opportunity to choose products that accord with their environmental preferences (*e.g.*, organic), and their health concerns (*e.g.*, not fed animal by-products, in response to concerns over mad cow's disease). While more research would need to be conducted to determine what aspects of food production should be included on the label, at a minimum the label should include, as applicable to the type of product: (a) whether certified organic, (b) feed type (grain or animal by-products), (c) use of hormones (including, for example, rBGH),¹³⁴ (d) use of animal drugs or antibiotics, and (e) living conditions, specifically whether free-range or farm house-raised. These categories are in fact already commonly approved by the USDA for those producers seeking to promote their products,¹³⁵ but producers should be required to state the information even if not a positive attribute of the food product. In this way, consumers will be provided a more stark, honest picture of how their food was produced.

An example of such a food label for a meat product could therefore look as follows:

Production Methods

Feed. Grain fed. Not fed animal by-products.

Hormones. Raised without added hormones.¹³⁶

Drugs. Raised without antibiotics.

Living Conditions. Free-range.

In this way, consumers are provided with a summary of information with which they can make purchasing decisions. The label remains uncluttered and uncomplicated. If producers, or the government, wanted additional information provided, producers can make use of existing technologies, such as the barcode scanners

¹³⁴ Since chickens are not permitted to be raised with hormones, manufacturers should either omit this information, or, if they state raised without added hormones, they would need to qualify the statement by saying that Federal regulations prohibit the use of hormones in poultry. Labeling and Additives Policy Division, Office of Policy, Program Development and Evaluation, FSIS, USDA, *Commonly Approved Claims*, http://www.fsis.usda.gov/OPPDE/larc/Appvd_Claims.htm (last visited Mar. 3, 2001).

¹³⁵ *Id.*

¹³⁶ The USDA does not approve claims such as Hormone free, presumably because animals naturally have their own hormones. *See id.*

in Denmark, that can provide more information than on the attached food label.

B. Format

This proposal envisions that the environmental information can be included on the product's label. One way to address the readability of the total food label would be to present the Environmental Summary in a contained box, similar to how the Nutrition Facts are currently displayed. Examples of this Environmental Summary follow.

1. Vegetable products

A label for a genetically modified tomato could read:

Environmental Summary GM. Genetically Modified. This tomato was genetically modified to improve texture. Production Methods.
Not certified organic. Chemical and Environmental Contaminants. Chemical A (pesticide) 1-3 Units

This label would inform consumers that the tomato had been genetically modified, why the biotechnology was used, and that there are pesticide residues present in the food. As a comparison, a tomato that was organically grown could read:

Environmental Summary GM. GM-free. Production Methods. Certified organic by XYZ Chemical
and Environmental Contaminants. Chemical A (pesticide) .2 Units This product contains a trace amount of pes-

ticide from former soil use.

2.

Meat products

Similarly, a meat product could be labeled as follows:

Environmental Summary GM. GM-free. Production Methods. Feed. Grain fed. Not fed animal
by-products. Hormones. Hormones added to aid milk production. Drugs. Raised with antibiotics. Living conditions. Raised in farmhouse.
and Environmental Contaminants. PCBs .5 Units

This label includes information on biotechnology, chemical contamination, and production methods. A meat product raised using biotechnology, such as growth hormone salmon,¹³⁷ would also have its GM information labeled.

These samples merely hope to demonstrate how the information can be displayed. More research, such as through FDA focus groups, would be needed to ensure that the information on the label is complete, accurate, and understandable, especially depending on food type.

IV. Conclusion

Since at least 1938, Congress has been concerned with informing the public as consumers about the food products they purchase. During 1938, Congress passed the Food, Drug & Cosmetic Act which required that manufacturers of processed, packaged foods provide information on the labels including the name of the

¹³⁷ *Report on Consumer Focus Groups on Biotechnology, supra* note 51.

food, its ingredients, the net quantity, and the name and address of the manufacturer. In 1990, at the urging of the FDA, Congress added to this list of required information standard nutrition facts. It is time again to reassess the information that is required on food labels. Recent technology, such as genetic engineering, and recent health scares, such as mad cow's disease, require a reexamination of what information is provided to the public about the food they eat. Even without food scares, consumers have an underlying right-to-know about the true ingredients in their food products. Consumers, as citizens, also have a right to know more about food production methods, so that they can vote with their dollars for the businesses who produce their food in ways that accord with their environmental or ethical values. Environmental labeling requirements may also promote fair competition between producers, as all producers will be asked to provide uniform labeling. Producers will no longer be able to hide the negative aspects of their food production methods that are required to be disclosed under this labeling proposal. In the end, these labeling requirements may help meet the social objective of improving food production practices and the environment.

This paper has sought to propose the types of information that should be required on the food label. At a minimum, consumers should be told whether their food product was genetically modified, whether the food contains environmental or chemical contaminants, and how the food was produced. While more research would need to be completed to ensure that the food label was accurate, complete, and comprehensible, this paper has attempted to present one potential framework for such a label. Hopefully in the near future, consumers may be able to benefit from an increased transparency on their grocer's shelves.