




Behind the Bean

The Heroes and Charlatans of the Natural and Organic Soy Foods Industry

The Social, Environmental, and Health Impacts of Soy

CORNUCOPIA
INSTITUTE

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The Cornucopia Institute is dedicated to the fight for economic justice for the family-scale farming community. Through research, advocacy, and economic development, our goal is to empower farmers both politically and through marketplace initiatives.

The Organic Integrity Project acts as a corporate and governmental watchdog assuring that no compromises to the credibility of organic farming methods and the food it produces are made in the pursuit of profit. We will actively resist regulatory rollbacks and the weakening of organic standards, to protect and maintain consumer confidence in the organic food label.

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Executive Summary

With the continued marketplace shift toward eating organic, local, and sustainably produced food, more consumers are interested in knowing the story behind their food. This cultural shift represents consumers' desire to eat healthily, and to invest in environmental health, family farms, animal welfare, and, often, their own local economies.

Adding to the social, health and environmental impacts of food-buying decisions, people purchasing organic soy foods, such as tofu and soymilk, want to know whether the soybeans were grown by American family farmers, whom they trust, or imported from China, Brazil, and other countries. Consumers, especially those investing their hard-earned dollars in organic brands, are edgy about imports after multiple contamination problems with imported food, including the recent China melamine scandal.

Many educated consumers also want to avoid genetically engineered ingredients, and many assume organic companies test for fraud or accidental contamination.

Some soy consumers, many of them vegetarians or vegans for religious or philosophical reasons, feel it is important to support family-owned businesses that share their values, as opposed to buying brands owned by multi-billion-dollar corporations that are also heavily involved in conventional animal agriculture.

To shed some light on these questions and more, the Cornucopia Institute developed this research paper and the accompanying Organic Soy Scorecard. The scorecard rates organic soy food brands based on ten criteria, including soybean sourcing and production practices. The scorecard serves as an objective resource for consumers and wholesale buyers, and showcases the heroes in the organic soy foods business. Part I of the report examines some of the criteria of the scorecard in greater depth and showcases some of the companies that scored highly, as well as some of the companies that did not.

The report highlights the brands in the 5-Bean category that appear highly committed to organic integrity and source exclusively domestic organic soybeans, most often directly from family farmers (rather than five stars, the companion scorecard ranks brands on a 1-to-5 *Bean* rating). If we wish to see more North American farmers switching to organic agriculture, as opposed to relying heavily on genetically engineered crops, petroleum-based fertilizers, and toxic pesticides, consumers must support the companies that buy from North American organic farmers—and the Organic Soy Scorecard shows which companies do so.

At the bottom of the scorecard (in the 0-Bean and 1-Bean categories) are the companies that were unwilling to share their sourcing and production information with The Cornucopia Institute and, more importantly, their customers. Our research indicates that many of these com-

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If we wish to see more North American farmers switching to organic agriculture ... consumers must support the companies that buy from North American organic farmers—and the Organic Soy Scorecard shows which companies do so.

panies are sourcing Chinese soybeans, and this may be why so many are unwilling to share their sourcing decisions.

Given the weak U.S. Department of Agriculture (USDA) oversight of organic certifiers working in China, their hesitation makes sense. When the USDA audited certifiers in all of China, for the first time in August 2007, they scrutinized four certifying agents but visited only two farms in China. They found multiple noncompliances of the federal organic standards. Noteworthy and worrisome violations include the failure of one certifying agent to hire Chinese inspectors that are adequately familiar with the USDA organic standards, and the failure by another organic certifying agent to provide a written and translated copy of the USDA organic standards to all clients applying for certification. This raises serious concerns about whether foods grown organically in China follow the same USDA organic standards with which we require American farmers to comply. How can you sign an affidavit that you are following the letter of the law—when you have not had the opportunity to read the law in your native language?

The use of chemical solvents such as hexane—a neurotoxin listed as a "hazardous air pollutant" by the EPA—is strictly prohibited in organic food processing, yet its use is widespread in the "natural" soy industry.

Part II of the report exposes a "dirty little secret" in the natural foods business—the widespread use of a toxic and environmentally damaging chemical, hexane, in the manufacturing of "natural" soyfoods such as vegetarian burgers, nutrition bars, and protein shakes. The use of chemical solvents such as hexane is strictly prohibited in organic food processing, yet its use is widespread in the "natural" soy industry, including in some products labeled as "made with organic soybeans," such as Clif® Bars. Hexane, a neurotoxin, is listed as a "hazardous air pollutant" by the U.S. Environmental Protection Agency (EPA), and grain processors, including soy processors, are responsible for more than two-thirds of all hexane emissions in the United States.

The effects on consumers of hexane residues in soy foods have not yet been thoroughly studied and are not regulated by the U.S. Food and Drug Administration (FDA). Test results obtained by The Cornucopia Institute indicate that residues—ten times higher than what is considered normal by the FDA—do appear in common soy ingredients.

At least two hexane-extracted ingredients are found in certain processed organic foods, including organic infant formula. Both ingredients can be sourced organically. The National Organic Standards Board (NOSB) recommended that one of the ingredients, soy lecithin, be removed from the USDA's National List of approved substances for use in organically labeled products (current regulations allow manufacturers to use conventional versions of certain minor ingredients if the organic version is commercially unavailable and it is deemed safe). Unfortunately, the NOSB also voted to keep a de-oiled form of conventional soy lecithin—produced with hexane and acetone—on the National List as a matter of convenience for food manufacturers.

Other hexane-extracted ingredients that many industry experts believe should not be present in organic foods, especially organic infant formula, are algal DHA and fungal ARA oils. These oils—nutritional supplements containing omega-3 and omega-6 fatty acids—are produced by Martek Biosciences Corporation by way of a process that immerses fermented algae and soil fungus in a hexane bath. The Cornucopia Institute is especially concerned with evidence obtained through a Freedom of Information Act request with the FDA that these DHA and ARA oils, when added to infant formula, are linked to serious health complications experienced by some infants. Organic foods should be a refuge from chemically processed additives in foods: consumers expect nothing less.

Introduction

In today's globalized food system, consumers are increasingly interested in knowing the full story behind their food. Recent reports—such as toxic chemicals in baby formula or excessive levels of antibiotics and pesticides in foods from China—remind us of how little control we have over our food. Organic foods should provide a refuge from these uncertainties. We trust that the "USDA Organic" label provides a safe haven from chemicals used to grow and process foods. We also suppose that purchasing organic foods means supporting a more environmentally sustainable and more economically just food system—one that connects consumers with the North American family farmers who grow our food without synthetic fertilizers and potentially harmful chemical inputs.

The organic label does indeed assure consumers that the food was produced in a more sustainable way than conventional foods. The vast majority of organic food manufacturers believe deeply in the principles that are foundational to the organic movement—ecological sustainability, fair prices for farmers, and so on—and their products reflect this commitment.

Purchasing organic foods means supporting a more environmentally sustainable and economically just food system—one that connects consumers with the North American family farmers who grow our food without synthetic fertilizers and potentially harmful chemical inputs.

Organic farmer in his corn and soybean fields in Northern Illinois.
Photo courtesy of Midwest Organic Farmer Cooperative.

But the system is not perfect. Given our willingness to pay more for organic foods, companies sometimes enter the organic sector motivated by profit and choose their own bottom line over a commitment to organic principles. Some companies go to China for cheaper organic ingredients instead of supporting North American family farmers.[1] Others use harsh neurotoxic chemicals (described below) to process ingredients in foods to which they then, disingenuously, attach the "made with organic ingredients" label. This report, and its accompanying scorecard, focuses on soy foods and provides wholesale buyers and consumers with a resource to help make informed purchasing decisions in the marketplace.

We chose soy foods for our second scorecard because they are an important part of the diet for many conscientious eaters who buy both organic and vegetarian foods. Organic foods are grown and processed in ways that build soil health, promote sustainability, and reduce negative environmental impacts; vegetarian diets are produced with less energy—one study found vegetarian diets require one-half the amount of energy compared with meat-based diets[2] —and less animal suffering.[3]

The majority of soybeans grown in the United States are used for animal feed in confined animal feeding operations (CAFOs), often called "factory farms," which pollute the environment and raise animals in conditions that many describe as unnatural and inhumane.[4] From the point of view of vegetarians and grass-fed meat enthusiasts, CAFOs are also very inef-

ficient, requiring anywhere from 8 to 16 pounds of soybeans to produce 1 pound of beef, for example.[5] Soy foods such as tofu and soy "milk" (referred to hereafter as "soymilk") allow people to source their dietary protein directly from a vegetarian food, without involving animals. As a result, foods such as tofu and soymilk are staples in the diets of most vegetarians.

The organic soy scorecard rates soy foods companies. Those that nurture direct relationships with North American organic farmers received high scores.
Photo source: istock.com

The Cornucopia Institute asked companies that produce organic soy foods such as soymilk, tofu, and vegetarian burgers about their products, raw materials, and production practices. Part I of the report examines, in depth, some of the criteria used for our scorecard. We were interested in each company's commitment to organics and to avoiding contamination with genetically engineered organisms (GEOs). We were also interested in each company's commitment to supporting domestic family farmers, which is why we asked about the sourcing of their soybeans. The majority of company participants source their soybeans directly from North American family farmers, and The Cornucopia Institute was able to verify these claims. Companies that nurture direct relationships with North American organic farmers received high scores. All companies listed in the scorecard were given multiple opportunities to participate; while many chose to do so, some declined and were unwilling to share any information regarding the sourcing of their soybeans with Cornucopia researchers or, indirectly, with their customers.

While Part I of the report focuses on the scorecard of organic soy companies, Part II examines the conventional ("natural") soy industry. According to one survey, more than one-third (37%) of Americans specifically seek out soy foods for health reasons.[6] The FDA-approved health claim that "25 grams of soy protein per day may reduce the risk of heart disease"[7] certainly plays a role; the same survey found that 85% of respondents either agreed with this claim or wanted more information. In this report, we will explore how this health claim came about as a result of pressure from corporations involved in soy processing—not health care professionals. This report will also briefly explore the debate surrounding natural substances found in soybeans—isoflavones—which are structurally similar to the hormone estrogen and exhibit weak estrogenlike effects in the human body.

Any food to which scientists devote this much time and attention is bound to create controversy. Many see nothing wrong with eating minimally or traditionally processed soy foods in moderation, as one would eat any plant food in moderation as part of a balanced diet. However, given that highly processed soy protein ingredients are now found in more and more processed foods, as well as 25% of infant formula sold in the United States, it is worth noting some of the controversies around the purported health benefits of soy.

Part II also exposes the natural soy industry's "dirty little secret": its widespread use of the chemical hexane. Hexane is used to process nearly all conventional soy protein ingredients and edible oils and is prohibited when processing organic foods. It is used in the food processing industry as a solvent to separate the oil from the protein and fiber of grains, including soybeans. It is a cost-effective solvent and highly efficient at creating high-protein isolates, but it is also a neurotoxic chemical that poses a serious occupational hazard to workers and is an environmental air pollutant.[8] Residue tests show that small amounts of hexane can and do appear in ingredients processed with this petrochemical. The government does not require that companies test for hexane residues before selling foods to consumers, including soy-based infant formula.

Organic foods or foods labeled "made with organic ingredients" are almost always free of ingredients processed with hexane—but not always. Clif® Bars, for example, misleads consumers with the "made with organic soy and oats" label, when one of the first ingredients listed is conventional, hexane-extracted "soy protein isolate." And companies that use soy lecithin, a vital ingredient in foods such as chocolate and baby formula, have a choice between an organic, non-hexane-extracted version and a conventional version. Those that are truly committed to organic principles will choose the organic version—even with its higher cost—whereas companies that might be more concerned with their profits tend to choose the nonorganic version.

Part I: The Organic Soy Scorecard

Companies were rated based on ten separate criteria. The scores for the various criteria were then totaled to determine the company's score and ranking:

Below is a summary of the ten criteria used for scoring. Each criterion is weighed equally, and criteria appear in no particular order. For full scoring explanations, see the Survey Scoring Sheet in Appendix A.

- **Ownership Structure**: The highest rating in this category goes to farmer-owned businesses that grow their own organic soybeans, then to farmer-owned or worker-owned cooperatives. Family businesses and other privately held companies are next, followed by publicly traded corporations.
- **Soybean Purchases**: In this category, companies that buy only organic soybeans for their products rate higher than companies that buy both conventional and organic.
- **Disclosure**: Companies that are full and open in their disclosure of sourcing, ingredients, and other practices such as GMO testing receive the highest rating in this category. Partial disclosures are rated lower.
- **Certifier**: In this category, companies that are certified by ethical and trustworthy certifiers receive a higher rating than those that use Quality Assurance International. QAI has been involved in numerous legal complaints and willful violations of organic standards in the past.
- **Organic Product Line**: Companies that manufacture only organic products receive a higher rating in this category than those involved in both organic and conventional production.
- **Manufacturing**: Companies that manufacture their products in-house have more control over production and therefore receive a higher rating in this category than companies that use a copacker. Copackers owned and operated by the company also receive a high rating.
- **Sourcing and Farmer Relationships**: The highest score for this category goes to companies that buy directly from North American organic family farmers and visit the farms.

  The next highest rating is for companies that also buy directly from North American farmers but do not visit the farms. The next tier, also highly rated, is for companies that purchase soybeans from a broker who purchases only North American soybeans and is transparent (participated in the project); or companies whose copacker purchases directly from farmers and was transparent. Secretive business models represent something wholly different from what consumers expect from trusted organic brands.

  Next are companies that purchase soybeans from a broker who claims to provide only North American soybeans but was not open and transparent and therefore would not allow The Cornucopia Institute to verify these claims. Low ratings go to companies that purchase soybeans from brokers sourcing internationally, such as from China and Brazil, and even lower are the companies whose copacker or broker would not disclose information.

  Companies that gave no information about their sourcing received a zero on this criterion.
- **Prevention of GMO Contamination**: The highest score in this category goes to companies that perform GMO contamination testing on every incoming load. Slightly lower scores go to companies that are enrolled in the Non-GMO Project or have their own internal monitoring program in place, or that perform testing occasionally. If no testing is done, the company receives a low score.
- **Flavoring**: The highest score in this category goes to companies that use only organic food ingredients to flavor their products (or use no flavors). For example, this means using organic vanilla extract and organic cocoa powder in soymilk. A slightly lower score, but still high, is for companies that use organic "natural flavors." Companies that use nonorganic natural flavors that are allowed under the federal organic standards receive a lower rating.
- **Soy Lecithin**: Companies that use organic soy lecithin receive the highest rating in this category. Organic soy lecithin is available, but a loophole in the organic standards allows manufacturers to use the hexane-extracted conventional lecithin in organic foods. Companies using conventional soy lecithin receive a lower score.

COMMITMENT TO ORGANICS

If we continue our offenses against the land and the labor by which we are fed, the food supply will decline, and we will have a problem far more complex than the failure of our paper economy. The government will bring forth no food by providing hundreds of billons of dollars to the agribusiness corporations.[9]

—Wendell Berry and Wes Jackson, from an op-ed piece in the *New York Times,* January 2009

Photo courtesy of Vermont Soy, Louis Rainville.

If we wish to see more farmers caring for the land in thoughtful ways, as opposed to relying heavily on petroleum-based fertilizers and toxic pesticides, consumers must support organic farmers by buying the foods they produce and paying them a fair price for it.

A Dead Zone in the Gulf of Mexico the size of New Jersey,[10] thousands of cases of acute pesticide poisoning among farmers and farmworkers,[11] polluted water from animal agriculture that kills millions of fish[12]—these are just a few examples of the "offenses against the land and labor" that Wendell Berry, a farmer and agrarian poet and writer, and Wes Jackson, president of The Land Institute in Kansas, are talking about. But Berry and Jackson are also talking about something more serious than these high costs. They are taking a lesson from history: societies that ignore the health of the land and soil that grows their food are doomed to fail. If we want our children and grandchildren to eat tomorrow, we must care for the land today.

Increasingly, governments, scientists, and organizations are coming to the same conclusions. In 2008, an intergovernmental panel, supported by organizations such as the World Bank and the United Nations, reported that organic management of food production is the most sustainable way to feed the world.[13] Organic farming combines old wisdom with modern knowledge of pest control, nutrient cycling, crop synergies, and soil health. Scientists and researchers are continually discovering additional benefits of growing food under organic management, while dispelling the myth that organic farming systems are less productive than intensive conventional systems.

If farmers do not care for the land, we risk losing the resources on which our food production depends. Organic agriculture aims to build the health of the soil, and to raise its productivity through means that are less dependent on fossil-fuel energy. Organic agriculture, therefore, is more than a system of "withouts"—without growth hormones, without synthetic fertilizers, without toxic pesticides, and so on. It is about building a healthy and sustainable food production system.

In 1995, the National Organic Standards Board defined the principal guidelines for organic production as the use of "ma-

terials and practices that enhance the ecological balance of natural systems and that integrate the parts of the farming system into an ecological whole." The board members also agreed that "the primary goal of organic agriculture is to optimize the health and productivity of interdependent communities of soil life, plants, animals and people."[14]

In order for a food to bear the green USDA Organic seal, it must be produced according to the USDA organic standards, which were developed with these principles in mind—to restore ecological balance, soil health, and productivity in our agricultural system. The USDA accredits certifying agents, which are responsible for inspecting farms and processing facilities, on an annual basis, to ensure that USDA certified organic foods comply with these federal standards.

Organic farming methods nurture the health of the soil, which, in the end, will ensure our continued ability to grow food.

Photo source: istock.com

If we wish to see more farmers caring for the land in thoughtful ways, consumers must support organic farmers by buying the foods they produce and paying them a fair price for it. Currently, 99.8% of soybean acres are farmed using almost exclusively genetically engineered seed and conventional, not organic, methods.[15]

This is one reason why the scorecard is so important, and why it contains several criteria that gauge the company's overall commitment to organics (to see all criteria used to rate companies, see "The Organic Soy Scorecard" on page 23). The criterion "Percentage Organic Soybean Purchases" awards higher ratings to companies that purchase only organic soybeans, as opposed to a combination of organic and conventional soybeans. Companies that manufacture and market only organic products ("Organic Product Line") are more committed to supporting organic agriculture and receive a higher score on this criterion than companies that are engaged in both organic and conventional food production and marketing. The criteria "Flavors" and "Soy Lecithin" also measure a company's commitment to supporting the growth of the organic industry, and those that use only organic flavors (or organic food ingredients as flavors) and organic soy lecithin rate higher than those that use conventional flavors and lecithin (both are currently allowed in organics). For more information on soy lecithin, see page 39.

Perhaps most importantly, the scorecard allows consumers in the marketplace to support the companies that in turn support North American organic farmers. These companies are a crucial link—connecting the conscientious consumer with organic farmers. It is important, then, for consumers and wholesale buyers to know which companies are serious about supporting "local" organic farmers.

COMMITMENT TO TRANSPARENCY AND OPENNESS

ORGANIC CONSUMERS WANT TO FEEL CONNECTED to their food, they want the story behind their food, and above all, they want to know that they are buying a product that was grown with respect for the environment and family farmers.

In the marketplace, organic food does cost more than conventional food. When consumers pay more, they consider the extra dollars that they invest to be well spent—a contribution to a food system that is sustainable, environmentally friendly, and economically just. The following words are taken from a soy supplier's web site and aptly capture how some companies consider organics to be just a marketing strategy to increase profitability:

Photo courtesy of Midwest Organic Farmers Cooperative

> Smart processors are catching the [organic] wave, and riding it to the increased profits brought by value-added organic foods. An organic label commands a premium price, and implies increased social responsibility for a brand. Quite simply, **organic means smart marketing** [emphasis added].[16]

Note also that this supplier writes that organic "implies" increased social responsibility—actual commitment to social responsibility presumably does not matter, as long as the company can *appear* to be socially responsible and use this as a marketing tool.

Companies that did not wish to share certain basic information with The Cornucopia Institute, such as where their soybeans were sourced, are missing a key point of the organic movement: consumers want to feel connected to their food, they want the story behind their food, and above all, they want to know that they are buying a product that was grown with respect for the environment and family farmers.

The National Organic Program may be overseen by the USDA's Agricultural Marketing Service, but few organic consumers and organic farmers see organic production as purely a marketing tool. The organic label indicates that the food was produced in accordance with the federal organic standards. When a company follows the organic standards and respects the letter and the spirit of the law, the organic word and label should indeed act as an encouragement for conscientious consumers to purchase that product. But companies that use the organic label or other organic claims must act in socioenvironmentally conscious ways. It has become too easy for companies to claim to be organic and green, while placing their profits before their social and environmental commitments.

Companies that did not wish to share certain basic information with The Cornucopia Institute, such as where their soybeans were sourced, are missing a key point of the organic movement: consumers want to feel connected to their food, they want the *story* behind their food, and above all, they want to know that they are buying a product that was grown with respect for the en-

vironment and family farmers. The companies that see the organic label as more than a marketing tool were willing to share their story (including certain proprietary information, which we committed to treat confidentially, enabling us to fact-check their representations) and their products' story with us. The scorecard, as well as information in this report, will help consumers identify the companies that are serious about supporting a more sustainable and just food system.

Companies that openly shared their sourcing and production information with The Cornucopia Institute when filling out the survey received full points on the "Disclosure" criterion of the scorecard. Even if a company did not score highly on all other criteria, it was still recognized as being open and transparent with its customers.

COMMITMENT TO STAKEHOLDERS, IN ADDITION TO SHAREHOLDERS

Of the companies that were considered early pioneers in the American organic soy food business, some remain independent and owned by their original founders, and others are now part of publicly traded corporations. Profitability is an important goal for any company, but only publicly traded corporations have a legal mandate to return profits to shareholders and must place profitability before other concerns, such as social responsibility and environmental stewardship.

When The Cornucopia Institute asked the CEOs of the companies that were original pioneers in the organic soy food movement to fill out the Organic Soy Survey, their reaction to our request for transparency seemed to correlate with their ownership structure. Those that remain independent and managed by their original founders, such as Eden Foods® and Whole Soy & Co®, did not hesitate—names of farmers and suppliers were immediately disclosed (we did, however, commit to all industry players that we would hold all proprietary information in strict confidence). These CEOs, being the original founders of organic companies, helped build the organic industry and fully understand why their customers want to know where their food is coming from. They appear to share their customers' values, and their companies appear to remain value-driven. The CEOs of early pioneering companies that were bought by large, publicly traded corporations, such as Silk® (now part of Dean Foods) and Westsoy® (now part of the Hain Celestial Group), refused to share any information for the Organic Soy Scorecard.

Photo source: istock.com

Companies that remain independent and managed by their original founders, such as Eden Foods® and Whole Soy & Co®, did not hesitate to share sourcing information with Cornucopia researchers—names of farmers and suppliers were immediately disclosed.

COMMITMENT TO AVOIDING GENETICALLY ENGINEERED ORGANISM CONTAMINATION

Genes do not function in isolation in any organism. Rather, they interact with and influence each other. When genes are manipulated by genetic engineering or conventional breeding, these interactions can lead to unintended side-effects that alter traits other than the intended one.[17]

—Union of Concerned Scientists

Photo source: istock.com

In 2008, 92% of soybeans grown in the United States were genetically engineered. In states such as Iowa and Indiana, the percentage is even higher—95% and 96%, respectively.[18] This is a tremendous increase since 2000, when 54% of U.S.-grown soybeans were genetically engineered—an impressive level of adoption, considering genetic engineering of soybeans is a relatively new technology.[19]

Nearly all genetically altered soybeans are engineered to be tolerant to the herbicide glyphosate, marketed as Roundup® by Monsanto.[20] This allows farmers to spray their fields with this herbicide, killing weeds without killing the Roundup Ready® soybean plants. Farmers planting genetically engineered soybeans are only allowed to use Monsanto's Roundup—not a less expensive generic version of the herbicide glyphosate—on Monsanto's genetically engineered soybeans. This assures Monsanto that farmers will continue to purchase their herbicide.

Today, genetically engineered soybean plants and heavy pesticide use go hand in hand—not exactly part of a sustainable agricultural system.

Farmers are not only required to use Monsanto's proprietary version of glyphosate, but they are also bound by a "technology agreement" that they are required to sign, which prohibits them from saving seed from their crop to use the following year. When "adventurous" genes have contaminated some farmers' crops, even when they have not planted genetically engineered seed, Monsanto has successfully sued these farmers for patent infringement.

Consumers should not be fooled by claims that genetically engineered crops and sustainable agriculture can go hand in hand. For example, studies have shown that the planting of Roundup Ready crops does not lead to reduced herbicide use. In fact, according to a report by agronomist Charles Benbrook, "between 1996 and 2004, farmers used 138 million more pounds of herbicides on genetically engineered varieties than on conventional ones."[21] This is partly due to the emergence of herbicide-resistant "superweeds." According to the report, "As weed scientists have predicted for years, the widespread use of glyphosate on millions of acres of GE crops has selected for weeds that are tolerant to the chemical. These new weeds are subdued only by multiple applications of glyphosate and/or other herbicides." Some farmers are forced to use what they referred to as a "chemical cocktail" in order to subdue the resistant weeds. Today, genetically engineered soybean plants and heavy pesticide use go hand in hand—not exactly part of a sustainable agricultural system.

The claims by biotechnology corporations that genetic engineering increases crop yields, and is therefore necessary to feed a growing world population, have also recently been refuted. *Failure to Yield*, a report by the Union of Concerned Scientists published in April 2009, is the first to evaluate in detail the overall yield effect of genetic engineering. Regarding soybeans specifically, the report concludes that "herbicide-tolerant soybeans, the most widely utilized genetically engineered crop by far, do not increase either operational or intrinsic yield."[22] In addition to finding that genetic engineering does not increase crop yields, the report also contributes to debunking the myth that organic methods produce lower yields: "Organic and low-external-input methods (which use reduced amounts of fertilizer and pesticides compared to typical industrial crop production) generally produce yields comparable to those of conventional methods for growing corn or soybeans."

Consumers wishing to avoid genetically engineered foods should choose organic, because the federal standards for organic agriculture prohibit the planting of genetically engineered crops. But while organic farmers are required to use seeds that were not genetically engineered, farmers and food processors are not required to test for accidental contamination. Accidental contamination is a growing concern. Contamination can occur at several points in the path from seed to table, including in the fields through cross-pollination (although this is of much greater concern for corn and some other crops than for soybeans), and through contamination of processing and transportation equipment, among other factors.

Some companies claim to be "non-GMO" (non–genetically modified organism) and test for contamination, but not all. Most companies rely on written statements from suppliers that the product is non-GMO, but oftentimes these statements are not backed by testing or adequate information. Those that do test, or have other procedures in place to avoid contamination, received high ratings on the "Prevention of GEO Contamination" criterion of the scorecard.

Companies also received points for being enrolled in The Non-GMO Project, which is a new collaborative effort that has established North America's first consensus-based standard of best practices for avoiding GEOs in production. It is a collaboration of manufacturers, retailers, processors, distributors, farmers, seed breeders, and consumers. The project also has a third-party verification system to assess compliance with the standard.

Non-GMO Project Verified labels can be found on participating products starting in the fall of 2009.

The core components of the Non-GMO Project standard are traceability of the ingredients, segregation of GEO and non-GEO foods along the path from seed to table, and testing for accidental contamination at critical points. The Non-GMO Project provides extra assurance to consumers that the product was tested for GEOs, and that the company making the product has a dedicated system in place to minimize contamination.

Companies producing soy foods that are already enrolled in the third-party Non-GMO Project include Eden Foods and Whole Soy & Co. Consumers can expect to see the Non-GMO Project Verified label on some foods in the fall of 2009.

COMMITMENT TO SUPPORTING NORTH AMERICAN ORGANIC FAMILY FARMERS

"If people want high-quality organic food grown by American family farmers, they need to support us not only when times are good, but also when times are bad."

– Phil Lewis, organic farmer in Kansas and owner of Lewis Ag Service, which supplies organic soybeans for Small Planet Tofu.

Photo courtesy of TOFU Phil.

While companies like Dean Foods told its Silk customers a couple of years ago that it had to go to China because of domestic shortages, others like Small Planet Tofu continued to work with these farmers in Kansas, showing their commitment to supporting American organic agriculture.

Sales of soy foods and beverages increased 29% between 2003 and 2007.[23] Despite the surge in consumer demand for organic soy-based foods in the United States, USDA data suggests that the number of domestic acres planted with organic soybeans is decreasing. In 2002, the first year of USDA organic certification, 126,000 acres of organic soybeans were grown in the United States. In 2005, the most recent year for which the USDA has data, that number dropped to 122,000.[24]

According to two USDA economists, "U.S. organic soybean production started declining several years ago as low-cost production began to increase in developing countries."[25] Some family farmers growing organic soybeans tell a similar story: when China started to offer organic soybeans at a slightly lower price, some companies, like industry leader Dean Foods and its Silk soymilk brand, took advantage of the lower prices from China. In China, 40,000 hectares of farmland were certified organic in 2002, this number increased by over 1000% to 3,466,570 hectares in 2006.[26]

Based on our own research, using import data, we estimate that close to 100 million kilograms of organic soybeans and soymeal were imported from Asia between March 2008 and March 2009. Today, there is indeed a shortage of domestic organic soybeans. Years ago, when China offered cheap organic soybeans, some companies did not hesitate to purchase Chinese soybeans instead of supporting North American family farmers and domestic organic soybean production. Now that companies and consumers are wary of Chinese imports, and looking for domestic sources, they are encountering a shortage of high-quality organic soybeans. Some brokers have standing orders from food manufacturers for domestic beans, which will likely remain unfilled. These food manufacturers will have no choice but to go abroad, shut down their businesses, or switch from organic to "non-GMO" conventional.

The important difference between companies sourcing Chinese soybeans and those still sourcing all American-grown organic soybeans is the company's commitment to domestic organic agriculture. While companies like Dean Foods told its Silk customers a couple of years ago that it had to go to China because of domestic short-

ages, others like Small Planet Tofu were able to continue offering their customers 100% American-grown organic soy foods. Small Planet Tofu has been working with the same American farmers for 17 years and did not end its relationship with them as soon as cheaper soybeans became available from other countries. And while Dean Foods is today shifting product lines more and more to the use of conventional soybeans, companies such as Vermont Soy are working together with farmers in their home state to grow organic soybeans for their products.

To combat a shortage of organic cow's milk, over the past 10 years, many companies, including Dean Foods/White Wave's Horizon label, in order to grow their market share, helped recruit dairy farmers and paid them supplemental income during their transition to organics. If Dean Foods and other corporations had been truly committed to the organic farming movement, they could have incorporated the same methodology for securing adequate raw materials to grow their soy business. However, they opted instead to source cheaper beans from China without the necessity of upfront investments.

Concerns about the safety of foods coming from China have led some companies to discontinue using Chinese soybeans. But instead of working more closely with North American organic farmers, some, like Dean Foods/WhiteWave, are sourcing more nonorganic soybeans. Other companies are now looking to India as an alternative source of cheaper organic soybeans. While India's organic soybean exports to the United States are dwarfed in comparison to Chinese exports, they will likely increase over time. In 2008, approximately 120,000 kilograms of organic soybeans were imported from India versus approximately 95 million kilograms from China. And despite the concerns about foods coming from China, many companies continue to source Chinese soybeans. The scorecard's "Sourcing and Farming Relationships" criterion sheds light on companies' purchasing practices, with companies sourcing directly from American family farmers receiving higher scores than those sourcing Chinese organic soybeans.

Sourcing: China

Regulation is an imperfect substitute for the accountability, and trust, built into a market in which food producers meet the gaze of eaters and vice versa.

– Michael Pollan[27]

For the past couple of years, North American organic farmers have been concerned, for good reason, about the availability of cheap organic imports from China and their effect on the prices paid to U.S. farmers. When companies bought organic soybeans from China that were slightly cheaper than American-grown soybeans, it often meant that American organic farmers were not able to sell their soybeans. Some farmers unfortunately exited organic production, while others shifted to producing crops other than soybeans.

Photo source: istock.com

Some industry insiders estimate that as many as 50% of organic soybeans consumed in the United States are imported from China.

Some industry insiders estimate that as many as 50% of organic soybeans consumed in the United States are imported from China. Meanwhile, some farmers report that they sell organic soybeans to Japanese companies, who are willing to pay the extra price, including the extra price in freight, rather than buy Chinese imports, which they believe to be of lower quality. Since the USDA does not track imports of organic agricultural products, there is no government data available on the exact quantity of imported organic soybeans from China. Our own research, using proprietary data we purchased, indicates that approximately 100 million kilograms of Asian-grown organic

soybeans, nearly all Chinese, were imported to the United States between March 2008 and March 2009. For comparison, approximately 130 million kilograms of organic soybeans were grown in the United States in 2005.[28]

The Cornucopia Institute's aim is to give consumers the information necessary to buy soy foods that contain North American–grown organic soybeans. We identified the companies that have maintained positive relationships with domestic organic farmers and have thereby assured a steady and adequate supply of North American–grown organic soybeans. Staying true to the spirit of organics, these companies remained devoted to their farmers even when China offered organic soybeans at lower prices.

For consumers, a major concern with Chinese soybeans stems from the numerous reports of contamination of imported foods. One example is the recent problem with melamine contamination of Chinese foods. Melamine is a chemical that is commonly used to manufacture plastics and adhesives. It boosts the apparent protein content of raw food materials (because it contains nitrogen, which is also a major element in proteins), and Chinese workers have admitted to illegally adding this chemical to animal feed.[29]

Organic soybean field in China.
Photo courtesy of New Standards

On their visit to China, USDA auditors found several noncompliances of certifying agents that raise questions about the organic integrity of Chinese imports.

Melamine was also detected in food for humans, such as powdered milk used for infant formula in China. When combined with cyanuric acid, which may also be present in melamine powder, melamine can form crystals that can give rise to kidney stones, potentially causing kidney failure and, in some cases, death.[30] As of September 17,2008, the World Health Organization reported over 6000 cases of kidney stones in Chinese infants, and three infant deaths as a result of melamine contamination of infant formula.[31]

In November 2008, a French farm cooperative found melamine up to 30 times the maximum level allowed by authorities in 300 tons of organic soymeal imported from China. The soymeal was used to make feed for organic poultry.[32] Given the problems with Chinese imports, the FDA currently tests each shipment of soy protein coming from China for possible melamine contamination. Consumers can also be assured that whole soybeans, which are used to make soymilk and tofu, are less likely to be contaminated with melamine than soy meal. However, while the melamine contamination problem may be under control, these experiences with food adulteration and contamination do underscore the need for strong oversight of foods coming from China.

And yet, strong oversight of the organic standards may be exactly what is lacking in China. Organic foods grown in China for export to the United States are certified by one of a handful of U.S.-based, USDA-accredited certifiers working in China, or a foreign—usually European—USDA-accredited certifier. There are currently no Chinese-operated certification agencies that have been accredited by the National Organic Program.

In August 2007, after years of aggressive public criticism by The Cornucopia Institute, the USDA sent two staff members to China for a belated audit of USDA-accredited certifiers working in the country. This was the first time that USDA staff members visited certifiers in China and Chinese farms to ensure that inspection procedures were in compliance with the

USDA organic standards. It was an inexcusable delay, especially given the history of fraud in Chinese organic commerce in their domestic market, which has been well documented in the Chinese media.

As it turns out, the USDA audited four certifying agents during their China visit but visited only two farms in the entire country.[33] It is the responsibility of the USDA to ensure that certifying agencies are properly certifying and applying the National Organic Program standards. Waiting five years to visit Chinese farms, and then visiting only two farms in the entire country, shows a level of gross neglect by the USDA's organic program managers during the Bush administration. If the reputation of organic food is impugned through illegal and fraudulent activities in China and an incompetent level of oversight by the USDA, it will be the domestic farmers and entrepreneurs that built this industry who will be harmed.

One of the U.S.-based certifiers working in China, the Organic Crop Improvement Association (OCIA), certifies at least 119 farms in China,[34] yet information obtained through a Freedom of Information Act request by The Cornucopia Institute indicates that USDA auditors did not visit a single Chinese farm as part of their OCIA audit. One and a half years after visiting China, the USDA has not yet shared with the public the 2007 audit report for OCIA, which was part of the China visit.

Some of the noncompliances found by the USDA auditors are worrisome and raise questions. One concern is that the Chinese inspectors employed by the certifying agents are not adequately familiar with the USDA organic standards to properly certify Chinese farms to our standards. The integrity of organic food depends on the ability of the organic certifiers to adequately inspect farms and processingplants and ensure that the organic standards are upheld. The national organic standards, in section 205.501(a)(5), state that certifying agents must ensure that their inspectors "have sufficient expertise in organic production or handling techniques to successfully perform the duties assigned." The USDA auditors found that this was not the case in several instances. In their audit report for the Institute for Market Ecology (IMO), a Swiss certifying agent that currently certifies 62 farms in China,[35] the USDA auditors state[36]:

> The inspector had limited experience with processors in general and of organic processing and handling techniques. The inspector indicated the client needed to maintain a "buyers list." When asked to which standard the requirement to maintain a buyers list came from he was not sure. When questioned on whether the requirement was a USDA National Organic Standard requirement he did not know [emphasis added].

In their audit report for the German certifying agent Ecocert, the USDA auditors noted that Ecocert had failed to conduct performance evaluations for the three client managers:[37]

> A private or governmental entity accredited as a certifying agent under this subpart must: Conduct an annual performance evaluation of all persons who review applications for certification … or make certification decisions and implement measures to correct any deficiencies in certification services. [USDA auditors found] no records of performance evaluations for the three client managers.

This raises serious questions about whether organic products coming from China comply with the USDA's national organic standards. These products may be accompanied by an organic certificate, but is that enough assurance, given that some Chinese inspectors hired to certify to the USDA organic standards are not familiar with our standards or are not evaluated annually as required by the USDA standards?

Equally worrisome is the finding that farmers may not always be adequately informed about the USDA organic standards. The USDA auditors found the following noncompliance during its audit of Ecocert:

> The NOP standards are not provided to all clients that apply for certification. The translated standards are only provided to those clients that request the standards or that participate in training sessions. Those that request the standards are provided only those portions they inquire about (i.e., national list, labeling, etc. …).[38]

This finding adds to the concerns about whether foods grown organically in China follow the same USDA organic standards with which American farmers are required to comply. Can farmers in China really be expected to know the American standards they are supposed to follow if the certifier fails to supply them with a copy of the USDA standards?

As a result, certain practices common in China but prohibited by the USDA organic standards may occur on Chinese farms that grow crops for export to the United States. The use of "night soil" is one example. Traditionally, Chinese farm-

ers use human waste to fertilize their crops. The use of human waste is strictly prohibited in organic agriculture according to the USDA organic standards. Organic consumers in the United States can only hope that supervisors who oversee the individual farmers are familiar enough with the USDA organic standards and that they adequately relay the specifics of the standards to the individual farmers.

Another concern that many have raised is that imported soybeans are accompanied by a certificate stating that the product is organic—but it is all too easy to falsify these records, whether intentionally or unintentionally. One cannot differentiate an organic soybean from a conventional soybean just by looking at it; the organic certificate accompanying the load is the only assurance that the product is grown according to the organic standards. The audit report for the IMO includes several noncompliances which reveal the certifier's carelessness with organic certification, and raises questions about the trustworthiness of the organic certificates coming out of China. The following noncompliance involves negligence about identifying organic products with organic certificates:

> Bags of soybean meal kept in the oil processing warehouse in Dalian, China did not contain any form of identification on the bags [emphasis added]. There were no records to verify that the product was in fact organic and it was transferred from one company to the next. The company stated this was because they considered it an internal transfer. However, they are operating as two separate certified operations.[39]

This noncompliance raises similar concerns regarding carelessness of the certifier:

> An audit trail on the incoming product and production record for a lot of soybeans was conducted by the inspector during the witness audit in Dalian, China. However, the calculations conducted did not account for the oil production from the soybeans. The inspectors stated the IMO checklist does not require this and thus was not considered in the calculations. The difference in the unaccounted product was 56.8 metric tons.
>
> During the tour of one processor, the inspectors reviewed two pallets of organic product and did not review or observe the other two pallets. Additionally, none of the six to eight pallets of conventional product were reviewed. Pallets were covered with tarps and could not be observed unless the tarps were lifted. **An audit trial [sic] conducted on product did not account for all product used during production** [emphasis added].[40]

It is important to note also that USDA auditors visited two locations in China that are certified by IMO, both processing facilities. The auditors did not visit a single farm certified by IMO. If the carelessness with which they certify the processing facilities is found also on the 62 farms they certify to the USDA organic standards, this raises serious questions about some organic crops coming from China.

Clearly, there is inadequate oversight in China, which points to a problem within the USDA and its failure to adequately audit the certifying agents. Perhaps the five-year audit requirement is adequate for domestic certifiers. But in light of the rash of recent and highly publicized food contamination problems flowing from China, it makes sense for the USDA to visit Chinese farms on a more frequent basis.

South America

The area deforested for cropland and mean annual soybean price in the year of forest clearing were directly correlated.[41]

– Douglas Morton et al., in the Proceedings of the National Academy of Sciences

South American countries, including Brazil and Argentina, are major sources of organic imports including soybeans.[42] Industry insiders estimated that Brazil produced 30,000 tons of organic soybeans in the early 2000s.[43] Most organic soybean producers are located in the southern regions of the country, far from the Amazon rain forest. While consumers should likely not be concerned about organic soybeans grown on recently cleared rain forest land, it is a concern when purchasing conventional soy foods. However, organic production in other regions undoubtedly puts pressure on converting more rain forest into "productive" agricultural use.

Brazil is a major producer of conventionally grown soybeans, both for human consumption and animal feed. In 2008, Brazil reported record grain harvests, harvesting about 60.1 million tons of soybeans.[44] Brazil's cultivated soybean area nearly doubled in the course of a decade, rising from 29 million acres in 1994 to 52 million acres in 2003.[45] World consumption of soybeans, especially for animal feed, drove this expansion.[46] Large-scale monoculture farms, which are highly mechanized and chemical intensive, are the norm in Brazil.

Between 2002 and 2003, the USDA's Foreign Agricultural Service reported that 30% of Brazil's soybean crops were grown in Amazonia.[47] Prior to 2006, researchers found that agricultural intensification leads directly to rain forest clearing.[48] Even if soybeans were not directly grown on recently cleared rain forest land, the acreage still contributed to rain forest clearing by forcing ranchers to look for

Soybeans grown in Brazil on recently cleared rainforest land.
Photo source: istock.com

ROUND TABLE ON RESPONSIBLE SOY

Knowing that consumers are increasingly concerned with the environmental and social harm caused by the expansion of soybean plantations in South America, corporations have created the Round Table on Responsible Soy Association (RTRS).

The RTRS defines itself as "an international multi-stakeholder initiative that brings together those concerned with the impacts of the soy economy. It's working to define what is responsibly-grown and processed soy and to promote the best available practices to mitigate negative impacts throughout the value chain."

Representatives of major agribusinesses – the same corporations that have been condemned for destroying the rainforests, depleting the soil, destroying rural economies and reducing biodiversity – are sitting around this *round table*. Undoubtedly, this leads to legitimate questions of how well the Round Table on Responsible Soy can really come up with truly meaningful, and enforceable, criteria for growing soy responsibly.

Moreover, the biotech agribusiness giants Monsanto and Syngenta were recently also given *a seat at the table*. In response, nonprofit organizations including the Rainforest Action Network, ASEED Europe, Friends of the Earth and over 200 others, point out that "it is clearer than ever that the aim of the RTRS is to serve commercial interests by enabling genetically engineered soy to be certified as 'responsible' and 'sustainable.'"

Nonprofit groups from all over the world have condemned the Round Table on Responsible Soy as mere "corporate greenwash," legitimizing the destructive practices. The Round Table allows corporations, which appear to be interested first and foremost in increasing their profit margins, to take destructive practices and define them as "sustainable." For example, the draft did not distinguish between genetically engineered soy and conventional soy, defining both as "sustainable."

Allowing Monsanto to be part of the discussion on how to grow soy sustainably and responsibly seems questionable enough; but it is just as important to note who is NOT sitting at the table: those representing the communities that are actually affected by the soy plantations and would benefit from "responsible soy."

The Roundtable on Responsible Soy is dominated by agribusinesses that are interested in "business as usual." Nonprofits that are sitting around the table, such as the World Wildlife Fund and The Nature Conservancy, are helping these corporations co-opt the term "sustainable" by providing legitimacy to this process.

Over 200 activist organizations have urged these nonprofit organizations to disengage from the Round Table. It is felt that environmental groups should truly challenge these corporations to stop the destructive practices, instead of legitimizing the Round Table on Responsible Soy, which some consider to be a corporate exercise in defining destructive practices as "sustainable."

more grazing land.

While it is unlikely that certified organic soybeans are grown directly on recently cleared rain forest land,[49] conventional soybeans used in soy foods such as nutrition bars and vegetarian burgers may well have been grown on former rain forest land. Solae™, which is a major supplier of conventional soy protein ingredients for nutrition bars and vegetarian bars, is an alliance between Du Pont and Bunge Limited.[50] Bunge, an agribusiness corporation based in New York but formerly based in Brazil,[51] owns Bunge Brasil. In 2005, Bunge bought soybeans from 30,000 growers in Brazil.[52]

According to the Rainforest Action Network, "Bunge is the largest exporter of soy from Brazil, where the crop has become the greatest driver of deforestation in the Amazon and the Cerrado." The Rainforest Action Network also reports that Bunge continues to buy soy from plantations that have been blacklisted by the Brazilian government for using slave labor.

Conventional soybeans used in soy foods such as nutrition bars and vegetarian burgers may well have been grown on former rain forest land.

Nonprofit groups like Greenpeace and the Rainforest Action Network are working hard toward the goal of ensuring that no soybeans are planted on former rain forest land. In 2006, Greenpeace pressured major users of Brazilian soybeans to stop buying them, such as McDonald's in Europe, which fed the soybeans to chickens destined for McNuggets. And in July 2006, companies that are heavily involved in soybean production agreed to a two-year moratorium, stopping the trade of soybeans grown on newly deforested land. The moratorium was extended one more year and is now in effect until July 23, 2009.[53]

Some believe that the moratorium is working; others, including Friends of the Earth and Conservation International, contest this assertion. They note that Brazil's environment ministry recently said that as much as 7,000 square kilometers of Brazil's rain forest was cleared from August through December, reversing a three-year decline in the pace of deforestation.[54] While it may not always be soy, "there's a clear link between agriculture and deforestation, with livestock and then grain farmers such as corn playing a significant role in deforestation," said Paulo Gustavo do Prado Pereira, environmental policies director at Conservation International.[55]

Others, including Greenpeace, believe that the moratorium is working because these acres were not cleared specifically for soybean production. The first field survey since the moratorium, in March 2008, found no soybeans were grown in any of the 193 deforested areas within the three states of Mato Grosso (the number one soy-producing state), Para, and Rondonia. Greenpeace noted that "the moratorium is doing its job and halting soya related forest destruction, despite the pressure from rising soya prices." However, Greenpeace's Amazon campaign director, Paulo Adario, said he is still concerned because much of the deforestation has occurred in areas next to existing soybean plantations, suggesting that the grain fields could move into those areas to meet growing international demand.[56]

Today, Bunge continues to buy Brazilian soybeans, and there does not appear to be any guarantee that these Brazilian soybeans do not end up in "natural" nutrition bars, vegetarian burgers, and other soy foods. Since Solae, a major supplier of soy protein isolate to "natural" food companies, is a subsidiary of Bunge, it is possible that "natural" products and "green" foods containing soy protein are made with Brazilian soybeans.

COMPANY RATINGS IN THE ORGANIC SOY SCORECARD

5-Bean Brands

EDEN FOODS is the only 5-Bean-rated company that sells its products nationwide and internationally. All EdenSoy® products—made from Eden's soymilk—contain 100% U.S./Canadian-grown organic soybeans. We were pleased that Eden Foods was fully transparent in their disclosure of where their ingredients are sourced. Names and phone numbers of organic farmers were immediately given upon request; Eden Foods' claim that it has long-standing relationships with its farmers was confirmed by follow-up research. The company is also highly committed to using only pure, real-food ingredients in its soymilk, such as vanilla extract and cocoa powder instead of natural flavors agents. Eden Foods is one of the few companies that performs testing for GEO (genetically engineered organisms) contamination on every load of incoming soybeans. This is a company that appears highly dedicated to supporting organic farmers and providing truly organic food to consumers.

CORNUCOPIA FUNDING FROM THE SOY FOODS INDUSTRY

In the 12 months prior to the publication of this report, approximately 3.5% of Cornucopia's budget came from corporations or cooperatively owned businesses with interests in soy manufacturing or marketing.

The scoring criterion (published on our website and linked at the bottom of the scorecard) is objective without weighing any of the 10 questions. There is little if any latitude for subjective interpretation of the data we collected. The report's principal researcher/author does not have access to past or current fund-raising records.

We do not endorse commercial products nor do we accept advertising in any of our print or web communications.

VERMONT SOY is an excellent choice for soymilk and tofu for people living in New England and New York. This relatively new company, which started selling fresh organic soymilk in 2007, is working with Vermont farmers to reach its goal of sourcing exclusively Vermont-grown organic soybeans. Before they reach this goal of 100% Vermont-grown, they will source a small amount of organic soybeans from farmers in neighboring Quebec. Vermont Soy is working with University of Vermont researchers and farmers to develop a soybean variety that grows best in the New England climate. The company's goal is to establish a healthy food system through a local economy supported by food and agriculture. Vermont Soy is also committed to using only real-food ingredients, flavoring its soymilk with real vanilla extract and fair-trade cocoa powder. Vermont Soy is unique in that it "gently pasteurizes" its soymilk, as opposed to the high-heat or ultra-high-heat pasteurization that is common with other commercially available soymilk brands. While "gentle" pasteurization gives their soymilk a slightly shorter shelf-life, it also means that it undergoes a less intense processing procedure.

Also at the top of our scorecard, in the 5-Bean category, are a number of small, independently owned "artisan" tofu and soymilk makers that buy soybeans directly from American organic farmers. These tofu makers pride themselves in handcrafting tofu in small batches, resulting in tofu that is, as they describe it, far superior in taste and quality compared to tofu that is mass produced. They are also committed to vegetarian values. These tofu makers have direct, sometimes long-standing, relationships with their farmers, allowing them to continue sourcing all American-grown soybeans even at times when domestic organic soybeans are in short supply.

SMALL PLANET TOFU is based in Washington state and calls itself the "Microbrew of Tofu™." Its tofu is available in stores in western states. Small Planet Tofu is serious about supporting American organic farmers and has bought soybeans from the same American farmers for the past 17 years.

FARMSOY™ is a family-owned business in Tennessee. Its tofu is available in Fresh Market stores in various parts of the country, including the Southeast and Midwest. The company buys directly from family farmers and handcrafts the tofu.

TWIN OAKS produces tofu, tempeh, and soymilk at the Twin Oaks intentional community in rural Virginia. Its products are available on the East Coast. This worker-owned cooperative buys organic soybeans directly from an organic family farm in Virginia, reducing the carbon footprint of their soybeans by buying so close to home.

In Canada, **UNISOYA** sells tofu in the eastern provinces. Unisoya is owned by two brothers who grow their own organic soybeans on 400 acres. This company therefore falls in a category of its own: these owners do not buy directly from organic family farmers, they *are* organic family farmers. Footprint Foods sells tofu and tempeh in Canada under the **GREEN CUISINE**® brand. It is a family-owned company that buys Canadian-grown organic soybeans from a broker who identified Canadian farmers who grow the soybeans that are used in Green Cuisine's products. Even though this company does not buy directly from family farmers, its supplier participated and the soybeans could be traced to the farms in Canada where they were grown.

4-Bean Brands

Brands in the 4-Bean category are also good choices, produced by ethical companies that openly shared information about their sourcing and production practices with Cornucopia Institute researchers. The reasons why they are not in the 5-Bean category vary, but each company should be commended for its commitment to transparency and honesty with its organic customers. As 4-Bean-rated brands, these companies all scored highly on *most* scorecard criteria.

Some 4-Bean-rated brands, such as **ORGANIC VALLEY**® soymilk, **GREAT EASTERN SUN**® miso, and **FRESH TOFU**, for example, source exclusively from North American organic farmers and use only organic flavors and food ingredients but do not yet have a testing system in place to discover any contamination with genetically engineered organisms. **WILDWOOD**®**,** on the other hand, sources some organic soybeans from China but buys only from Chinese farms that are inspected regularly by company representatives, as opposed to relying solely on organic certificates for assurance that the organic standards were followed. Wildwood also retains a long-standing relationship with a midwestern farmer who supplies some organic soybeans. Wildwood is one of the few companies to have in place a GEO contamination tracing and testing system. Others, like **TOFU SHOP**, lose points for sourcing organic soybeans from China instead of domestically but are still rated highly for using only organic food ingredients as flavors and being highly committed to organics.

There are many additional brands and products listed in the 4-Bean category of the scorecard. To find out more about your favorite soy food products, see the Organic Soy Scorecard, available on our web site (www.cornucopia.org/soysurvey).

3-Bean Brands

Among private-label brands ("store brands"), **HARRIS TEETER** stands out for its openness and transparency; it is the only private label to provide full and open disclosure about its sourcing practices. Harris Teeter is in the 3-Bean category because tracing the soybeans to their source was not possible. A soybean's path from field to shelf is much longer for those destined for private-label products; sometimes numerous middlemen are involved, and while some involved in producing Harris

Teeter soymilk participated, we were ultimately unable to verify the source of the soybeans. Our research indicates that the supplier of the organic soybeans for Harris Teeter soymilk works closely with North American organic farmers and sources at least a fair percentage of North American organic soybeans. Again, this grocery chain deserves credit for being transparent with their customers.

2-Bean Brands

TRADER JOE'S participated in the project by filling out the survey but refused to disclose sourcing information. It is unique among private-label brands for the company policy against sourcing genetically engineered ingredients (**WHOLE FOODS** also has a company policy against sourcing genetically engineered ingredients but did not participate in this project).

FOR VEGANS

For vegans who choose soy foods in order to avoid supporting the animal foods industry, it might be important to know that some companies are exclusively soy based, whereas others are involved primarily in producing and marketing dairy products, with soymilk on the side. Moreover, most private label soymilk is produced in facilities, and on equipment, used to process dairy.

The Cornucopia Institute opposes inhumane, polluting factory farms but does not in principle oppose raising animals for food, whether it be for dairy, eggs or meat. For this reason, the exclusive production of soy foods was not a question on our survey or criteria on our scorecard. As it turns out, every five-bean-rated company is involved in soyfoods and other non-animal-based foods exclusively. Their products are produced in facilities and on equipment that handles soy only, never dairy.

Every four-bean rated company in our scorecard that is also involved in animal agriculture, such as Organic Valley, Nancy's and Lifeway, all received the same high score in The Cornucopia Institute's Organic Dairy Scorecard (see www.cornucopia.org). This means that these companies are all supporting organic, grass-based animal agriculture which is much more humane and environmentally sustainable than the confinement-based factory farms that are now so common in our food system.

And while it may be possible to buy soy foods from companies that process soy foods exclusively, it is more difficult to purchase organic soybeans from farmers who grow soybeans exclusively. Organic farmers rely on diversity on the farm, which means that many raise animals in an integrated, more self-reliant farming system (this does not mean that all raise animals for slaughter). Composted animal manure is, for example, a much more sustainable fertilizer than the fossil-fuel based synthetic fertilizers used by conventional farmers. On many organic farms, animals are an important part of the system.

Consumers who wish to avoid supporting animal factory farms and the companies involved in such inhumane animal "farming" should avoid Silk, owned by Dean Foods. Dean is involved heavily in conventional dairy production from factory farms and also owns Horizon, which owns an 8000-cow "organic" factory farm. They also buy from other organic factory dairies, a matter which is highly contentious in the organic community. Many of the private-label soymilks on the market are packaged by companies involved mainly in dairy.

All companies with five-, four-, and three-bean ratings in our scorecard are good choices for consumers who do not want to support companies involved in inhumane and polluting animal agriculture.

1-Bean and 0-Bean Brands

Why are some well-known companies rated at the bottom of the scorecard? Because these companies refused to share the answers to the questions on which the scorecard is based.

Nearly all companies that are highly rated enthusiastically responded to our request for information about their companies and products. These companies are proud of how they make their foods and enjoy sharing information about their high-quality organic products with their customers. They are eager to share their stories, ready to tell us about their ingredients, and willing to share their sourcing information.

Pacific Natural Foods packages contain a "Certified to the Source™" seal, but the company refused to share its sourcing information with The Cornucopia Institute, or even share the identity of the organic certifier for the Chinese farms that grow its organic soybeans.

But some companies did not participate. These organic food companies realize that their customers want to know the story behind their food, and that they value environmental stewardship, fair prices to domestic family farmers, and pure ingredients. These companies extol their organic virtues with clever sound bites and beautiful pictures on their product packages, web sites, and other promotional materials. *But they do so selectively*. They hire marketing professionals who choose their language wisely and carefully decide which pieces of information to include and which to exclude. When The Cornucopia Institute asked if they were willing to share information freely with their customers and be rated objectively in comparison to other organic companies producing similar foods, they were reluctant. Although they may share a story on their web site to help satisfy their customer's desire for knowing the pedigree of their food, they apparently do not want to share *the whole story,* as Cornucopia's survey and follow-up fact-checking require.

One-Bean companies source at least some of their organic soybeans from American family farmers. The companies did not disclose this information; this information is based on Cornucopia research. Zero-Bean companies did not disclose any information, and our research was unable to confirm whether they purchase any organic soybeans from North American family farmers or depended on questionable imports.

One striking example is **PACIFIC NATURAL FOODS**. On their packages, they have a "Certified to the Source™" seal, and their web site explains that this program is "an ambitious endeavor to want to trace the origin of every single ingredient we use in our foods. … [We] figured if we were interested in knowing, so were our customers." Pacific Natural Foods' web site also has a video titled "We believe we should know where our food comes from," but other than sharing the sourcing of their organic bell peppers, the Pacific Natural Foods web site does not share sourcing information for any other ingredient in its products. On the web page for its organic soymilk, Pacific Natural Foods writes that "We are very picky about our soybeans." Cornucopia's research indicates that Pacific Natural Foods purchased close to half a million kilograms of organic soybeans from China in the past year. When asked simply to name the organic certifier of the farms

where their Chinese organic soybeans are grown, Pacific Natural Foods did not respond. When asked if Pacific Natural Foods would share with us the name of the third-party certifier for their "Certified to the Source" program, they were silent. This raises the question of whether this program is in fact third-party certified, or simply a marketing gimmick.

Similarly, **VITASOY USA**, makers of Vitasoy® soymilk and Nasoya® tofu, refused to participate in our scorecard project. Our research indicates that they purchase organic soybeans directly from American organic farmers in the Midwest, but they also purchased approximately 200,000 kilograms of organic soybeans and 100,000 kilograms of organic tofu from China.

WESTSOY and SOYDREAM® are two soymilk brands owned by the Hain Celestial Group. Westsoy started out as a small company, Westbrae Natural Foods, when a pair of idealistic students opened a coffeehouse in Berkeley. One of the foods they offered was imported soymilk from Japan. In 1997, the Hain Celestial Group, a multi-million-dollar publicly traded company that owns many natural and organic food brands, acquired Westsoy. The Hain Celestial Group also owns Soy-Dream. Hain Celestial did not respond to The Cornucopia Institute's requests for participation in the scorecard study, and it refused to share its sourcing information. They also own Earth's Best, a baby food and infant formula brand, for which they also did not share any sourcing or production information (more information on infant formula can be found in Part II of this report).

If you enjoy a product made by a company that did not participate in our scorecard project, and would like to know the full story behind your food, please contact the company and urge it to participate in the Cornucopia scorecard project. When additional companies respond we will immediately update the scorecard. A sample letter for you to personalize and send to the company, as well as company contact information are available on our web site (www.cornucopia.org/soyproducts).

Another brand of soymilk that chose not to participate in our scorecard project was the industry's largest producer of soymilk, in addition to other soy products, **SILK**. WhiteWave, which markets Silk soymilk, is a subsidiary of Dean Foods. Dean Foods is the largest processor and distributor of dairy products in the United States, with $11 billion in sales in 2007.[57] In his book, *Organic Inc.*, author Sam Fromartz provides an excellent account of WhiteWave's transformation from a small, values-driven company to a subsidiary of the corporate giant Dean Foods. When Steve Demos, the founder of WhiteWave, started manufacturing soymilk and tofu, he "wanted to prove to the profit-makers that [he] had a better model, based on values."[58] After Dean Foods bought WhiteWave in 2002, the company's quest to increase profitability for shareholders would soon clash with WhiteWave's values. Our own research, including conversations with organic farmers, adds to this story.

Oren Holle is an organic farmer in Kansas who is also the president of the Organic Farmers' Agency for Relationship Marketing (OFARM), an organic farmers' marketing cooperative. After Dean Foods bought WhiteWave and sought to increase production of its organic soymilk, Holle, along with representatives of the Kansas Organic Producers Association, met with WhiteWave representatives to explore a possible partnership between WhiteWave and organic farmers. He recalls,

Of four companies that were considered early pioneers in the American organic soyfood business, two remain independent and owned by their original founders, and the other two are now part of publicly traded corporations. Eden Foods and Whole Soy remain independent, Silk is now part of Dean Foods and Wildwood is part of the Korean Wildwood Pulmuone corporation.

When The Cornucopia Institute asked the CEO's of the two independent companies where they sourced their soybeans, there was no hesitation – names of farmers and suppliers were immediately disclosed (we did, however, commit to all industry players that we would hold all proprietary information in strict confidence). These CEO's, being the original founders of organic companies, helped build the organic industry and fully understand why their customers want to know where the food is coming from. They appear to share their customers' values and their companies remain value-driven.

The two others, Silk and Wildwood, did not share their sourcing information. The founders of both companies are no longer running these companies. Both companies claim to use only American-grown soybeans, so they clearly understand that a connection to American family farmers appeals to organic consumers. But while they are willing to say that they buy US-grown, they refuse to let an outside third party – with promises of preserving confidentiality—verify their claims. These companies are either hiding something, or they do not believe that sharing sourcing information with their customers is important. While they are clearly willing to profit from US-grown claims, they cannot be bothered to back up their claims by sharing their specific sourcing information with their customers.

Silk appears to be moving away from supporting organic agriculture. Its familiar cartons no longer contain organic soymilk, but "natural" soymilk, with organic soymilk in a newly designed carton. Unlike "organic" claims, there are no standards for "natural" farmers, and "natural" soybeans in Silk soymilk may be produced on monoculture farms, using inputs such as synthetic fertilizers and pesticides that would be strictly prohibited in organic production.

"We proposed to work diligently within the Kansas Organic Producers cooperative and partner with several other OFARM member cooperatives to supply superior quality beans with guarantees of being U.S. grown through the established organic audit trail process. While they 'talked the talk' about purchasing the beans from U.S. producers, when the pricing structure was proposed to make the venture modestly profitable for the U.S. growers, the bottom line answer was that if we weren't willing to provide the beans at a price equal to or less than the cost of available beans from China our proposal couldn't be considered further. End of negotiation."

Merle Kramer, a marketer for the Midwestern Organic Farmers Cooperative, observes, "Companies like White Wave had the opportunity to push organic and sustainable agriculture to incredible heights of production by working with North American farmers and traders to get more land in organic production, but what they did was pit cheap foreign soybeans against the U.S. organic farmer, taking away any attraction for conventional farmers to make the move into sustainable agriculture."

Today, WhiteWave is moving away from using organic soybeans altogether, claiming that there is an organic soybean shortage in the United States. It is clear, however, that WhiteWave is not an innocent victim of this shortage. Years ago, the company had the opportunity to work with American farmers to convert farm acres to organic soybean production, but they chose instead to source from China.

Ironically, Dean Foods' Silk brand is the marquee sponsor of the annual Farm Aid concerts—an event that purports to support family farmers and fight "factory farms."

Since Dean Foods acquired WhiteWave, its founder, Steve Demos, has left the company, along with almost all of the pioneering management—those who believed in "green" values. According to Demos, the company is now all about "green, with the dead presidents on it."[59]

The Cornucopia Institute's investment in the research behind this report, which has been widely known within the soy foods industry for the past year, might already have had, even before its release, an impact on American farmers and con-

sumers. Recently, WhiteWave claims on its web site that it sources all its soybeans from North American farmers. But the company refused to participate in the Cornucopia Organic Soy Scorecard project, not willing to share its sourcing information. Instead of lowering the cost of producing their soy products by sourcing raw materials from China, it now appears that they might be lowering their costs by purchasing conventional, non-GMO soybeans, switching over some of their product line from organic to "natural."

In January 2009, the familiar Silk soymilk cartons lost the green "USDA Organic" seal and now state "natural" where they once said "organic." The carton's design is the same, and many loyal Silk customers who associate the brand with organics[60] may not be aware that they are now buying a nonorganic product. Silk's organic soymilk is now in a newly designed carton.

Instead of supporting North American organic farmers, or encouraging farmers to switch from conventional to organic production, Dean Foods is doing the opposite by buying fewer and fewer organic soybeans. Unlike the use of the organic label on foods, the word "natural" is not stringently regulated. "Natural" soybeans in Silk soymilk may be produced on monoculture farms, using inputs such as synthetic fertilizers and pesticides that would be strictly prohibited in organic production. No government or third-party entity regulates the "natural" claim, so a "natural" soybean is essentially a conventional, nonorganic soybean. Silk claims that its soybeans are produced in a sustainable manner, but there is no accountability without the organic label. Their unwillingness to use certified organic soybeans apparently stems from the simple fact that nonorganic soybeans are much cheaper.

Instead of supporting North American organic farmers, or encouraging farmers to switch from conventional to organic production, Dean Foods is doing the opposite by buying fewer and fewer organic soybeans.

On some of their nonorganic products, including Silk Live® and Silk Yogurt®, White Wave/Dean Foods lists "organic soymilk" and "organic soybeans" as the first ingredient. According to a Silk spokeswoman, not all soybeans in these products are in fact organic,[61] these products are made with some organic soybeans, but not enough to qualify them for "made with organic soybeans" status. To qualify for the "made with organic soybeans" status, at least 70% of the ingredients must be certified organic. Either Silk is using some organic soybeans, but not all, or their yogurt contains more than 30% nonorganic fruit and other ingredients, which disqualifies it from the "made with organic" label. Consumers who associate Silk with organics, see that "organic soybeans" are listed as the first ingredient, and assume that this yogurt is an organic product are mistaken. This product contains more than 30% nonorganic ingredients and, possibly, nonorganic soybeans.[62]

Consumers who purchase organic soymilk in order to avoid supporting companies that are involved in animal agriculture should be aware that Dean Foods, owning over 50 dairy brands in the United States, also owns the Horizon Organic dairy brand. The Cornucopia Institute has filed legal complaints against Dean Foods for violating the organic standards governing organic dairy production. Under their Horizon Organic brand, Dean Foods sells milk from dairy farms—including a corporate-owned, 8,000-head dairy in Idaho—that allegedly fail to provide appropriate outdoor access to the cows, among other violations.

PRIVATE LABELS

Organic consumers are often interested in knowing the story behind their food—where the food was grown, how it was processed—but store-brand, also called private-label, products are inherently anonymous. The store contracts with a manufacturer to produce the private-label foods, and often the manufacturer relies on additional middlemen. Tracing the soybeans to the source is, therefore, often a difficult endeavor. Direct relationships between the brand and organic farmers are nonexistent. By virtue of the fact that these companies are operating in a secretive manner, consumers should be very skeptical about the quality and sourcing of the raw materials.

The only notable exceptions are **Harris Teeter** and **Trader Joe's**. Both companies participated by filling out the survey; Harris Teeter is in the 3-Bean category and Trader Joe's in the 2-Bean category.

Private-label companies in the 1-Bean category did not participate in the project, but through our research we were able to determine that at least some of the soybeans used in their organic soymilk are most likely sourced from North American organic family farmers. Private-label companies in the 0-Bean category did not participate in the project, and we were unable to trace the source of their organic soybeans. If you enjoy a private-label soy food product and would like to know more about the sourcing and processing, please contact the company and urge it to participate in the Cornucopia Organic Soy Scorecard project.

ISOLATING NUTRIENTS: SOY PROTEIN

The Politics Behind the "Heart Healthy" Claim

Food companies routinely place the needs of stockholders over considerations of public health, and the purpose of the soy 'heart healthy' claim was to increase market share.

– Marion Nestle, Professor of Nutrition at New York University
and author of *Food Politics*

As best-selling author and *New York Times Magazine* contributor Michael Pollan points out in his latest book, *In Defense of Food*, we should trust foods that are "real" and whole. When a food is part of a traditional diet throughout human history, chances are that it can be a safe and healthy part of a balanced and varied diet. He suggests that new, inventive, novel, genetically engineered, and highly processed foods be met with a healthy dose of skepticism. He refers to them as "food-like substances."

Scientists agree; Dr. William Helferich, who studies the effects of soy on cancer, found in one study that isolated soy ingredients stimulated the growth of tumors. He notes, however, that some studies have shown that more wholesome soy foods such as soy flour did not have this effect.[63] Such scientific studies support the idea that wholesome foods, minimally processed, are preferable to highly processed foods including isolated ingredients.

Soy foods such as tofu, tempeh, and miso have been part of the diet in Asian countries for centuries. William Shurtleff, co-author of *The Book of Tofu* and director of the SoyInfo Center, points out that Okinawa, Japan, has the highest consumption of tofu in that country, and its people have the longest life-span compared to other regions. Soy foods such as tofu and soymilk from many companies that are rated highly in our scorecard are only minimally processed—soaked, heated, ground, strained, curdled, and pressed—and are not processed more than other traditional foods such as cheese and yogurt produced from cow's milk.

The heart healthy claim on soy foods was proposed in 1998 by Protein Technologies International, a company known today as Solae, that stood to gain financially from a health claim. The American Heart Association (AHA) has strongly recommended that the FDA no longer approve a heart healthy claim on soyfoods.

The SoyInfo Center, which promotes soy foods as a healthy, environmentally friendly, and humane alternative to meat products, has a database of approximately 1,000 scientific, peer-reviewed, published studies showing health benefits of eating soy foods.

However, not all researchers and advocacy groups agree about the benefits of soy in the human diet. The Weston A. Price Foundation's (WAPF) president, Sally Fallon, objects to the widespread promotion of soy foods as a miracle health food. WAPF's web site lists scientific studies indicating that soy consumption, especially excessive consumption of isolated soy ingredients, may be harmful to one's health. Fallon says, "The propaganda that has created the soy sales miracle is all the more remarkable because only a few centuries ago the soybean was considered unfit to eat—even in Asia."[64]

Today, many Americans are familiar with the health benefits of soy foods through the FDA-approved "heart healthy" claim on food packages containing soy protein ingredients. It is important for American consumers to understand that this health claim is a direct product of corporate boardrooms searching for ways to sell more soy products—and to turn the soy "waste" by-products of soybean oil extraction into profits. In 1999, the FDA approved a health claim for soy foods: "Diets low in saturated fat and cholesterol that include 25 grams of soy protein a day may reduce the risk of heart disease."[65]

This health claim was first proposed in 1998 not by doctors or public interest groups, but by Protein Technologies International, a company that stood to profit tremendously if it could convince the American public to buy more soy protein (Protein Technologies International is now known as Solae). The key to selling more soy protein was convincing the American public that soy protein was a desirable product, and a health claim would go a long way to establish this reputation. Health claims on foods have long been recognized as an effective marketing tool. Even on the FDA web site, the value of health claims to corporate profits is acknowledged: Brian Sansoni, senior manager for public policy at the Grocery Manufacturers of America is quoted as saying that "[a health claim] brings attention to products; there are newspaper and TV stories and information on the Internet." So what better way to convince the American public to spend money on soy protein than to widely spread the message that it could reduce heart disease? With corporate funding, scientists published articles making this connection. In a cloud of controversy and doubt in the scientific community, the FDA allowed the health claim in 1999, opening the door to a new world of opportunity and profits for soy processors.

In her book *Food Politics*, which explores the influences of the food industry on nutrition policy, New York University Professor of Nutrition Marion Nestle explains that "under the various laws and court decisions governing FDA's actions in this area, the agency must approve claims backed up by well-conducted studies, no matter how out of context they may be or how quickly contradicted by further research."[66]

When the U.S. Agency for Healthcare Research and Quality reviewed the scientific evidence related to soy protein and cardiovascular health in 2005, it found few credible studies to support the heart health claim. Based on its review of more than 50 scientific studies, the committee found that soy consumption had "no effect on HDL cholesterol levels," "neither isoflavone or soy protein dose was associated with net effect on triglycerides," and "soy consumption does not appear to affect blood pressure level."[67]

The American Heart Association (AHA) has also strongly recommended that the heart healthy claim be removed. The AHA initially supported the heart healthy claim for soy protein, but after their expert committee reviewed the scientific research, the organization rescinded its support. In February 2008, the president of the AHA wrote to the FDA that the organization "strongly recommends that FDA revoke the soy protein and CHD health claim." He stated, "There are no evident benefits of soy protein consumption on HDL cholesterol, triglycerides, lipoprotein(a), or blood pressure. Thus, the direct cardiovascular health benefit of soy protein or isoflavone supplements is minimal at best."[68]

Many of the studies showing benefits to eating highly processed soy foods, as well as the health claim on these highly processed foods, are funded either by corporations or soybean grower associations.[69] These foods contain novel and highly processed isolated nutrients, and organic consumers looking for wholesome nutrition should be skeptical of "heart healthy" claims found on these food packages.

Whole foods, minimally processed, are preferable. Soy foods such as tofu, and especially fermented soy foods such as miso and tempeh, have long been part of traditional Asian diets and are viewed by many as a much more wholesome and healthful choice than foods with soy protein isolates or concentrates.

Soy Isoflavones as Estrogen Mimicks

When the whole food is consumed you get a very different effect than if you consume the concentrated constituents individually.

—Dr. William Helferich, Professor of Nutrition, University of Illinois

Photo source: istock.com

The debate surrounding the benefits or risks of soy consumption is not confined to heart health. The effects of isoflavones in soy, substances that are structurally similar to the hormone estrogen, are worth noting. Soy isoflavones are phytoestrogens; they bind to estrogen receptors in the human body and exhibit weak estrogen-like effects.[70] Due to these estrogen-mimicking qualities, isoflavones have been touted as a food-based way of reducing symptoms, such as hot flashes, in menopausal women. However, a review of scientific studies on this topic concludes that "the available evidence suggests that phytoestrogens available as soy foods, soy extracts, and red clover extracts do not improve hot flushes or other menopausal symptoms."[71]

When it comes to cancer risk, soy isoflavones have made contradictory headlines as both dangerous and beneficial. Some studies suggest that these phytoestrogens reduce the risk of cancer,[72] while others suggest that isoflavones stimulate the growth of estrogen-sensitive breast cancer cells in rodents.[73]

Some scientists are also concerned with the effects of phytoestrogens on infants given soy-based infant formula. Researchers found that the daily exposure of infants to isoflavones in soy infant formulas is 6- to 11-fold higher on a bodyweight basis than the dose that has hormonal effects in adults consuming soy foods.[74] Researchers have also reported that soy-formula-fed infants had isoflavone concentrations that were 13,000- to 22,000-fold higher than normal estradiol concentrations in infants.[75] Breast milk, which is the gold standard for infant nutrition, contributes negligible amounts of isoflavones, which is why some scientists are very concerned that these high rates of isoflavones in soy formula may disrupt the normal course of development in infants.[76]

Others argue that there is little evidence that infants raised on soy-based formula experience adverse effects as adults. One retrospective study of 811 men and women found no differences in height, weight, time of puberty, general health, or pregnancy outcomes between those fed soy-based formula as infants and those fed cow's-milk-based formula. The only difference was that women fed soy-based formula as infants reported significantly greater use of asthma or allergy drugs than women fed cow's-milk formula as infants.[77] While isoflavone concentrations in soy-formula-fed infants are much higher than in human-milk-fed infants, a recent study found that the levels of certain hormones did not differ.[78] These researchers did, however, point out that whether phytoestrogens in soy formula are biologically active in infants is still an open question.[79] Additional research in this critical area certainly seems to be justified.

Infants on soy-based formula consume the same foods at every single feeding for the first months of crucial development. The only nutritionally "normal" food for human infants is human milk, which is why the fact that soy-based infant formula contains more than 10,000 times more of a hormone-mimicking substance is disturbing. For this reason, the French government will require manufacturers to remove isoflavones from all soy-based infant formula, as well as require manufacturers to put a warning label on soy foods. When Dr. Mariette Gerber, M.D., Ph.D., who is a professor at the University of Montpelier in France, presented the potential health hazards of isoflavones in infant formula while explaining the new French regulations to industry representatives in the United States, the corporate officials scoffed that even onions have possible health hazards. Quite aptly, Dr. Gerber replied: "Do you feed infants [an exclusive diet of] only onions?"[80]

HEXANE: THE PROCESSING OF "NATURAL" SOY WITH A NEUROTOXIC POLLUTANT

It's the dirty little secret of the natural-foods business.

– Steve Demos, founder of White Wave Foods, on hexane-extracted soy protein[81]

Hexane is a petrochemical solvent used in conventional food processing. It is strictly prohibited in organic food processing, but common in "natural" soy foods.

Photo source: istock.com

The soyfoods companies that we highlight in our scorecard make foods from whole soybeans, which are very different from highly processed foods such as energy bars, protein powders and shakes, and veggie burgers made with isolated soy protein.

Tofu and soymilk are very rarely processed with hexane-extracted ingredients, and **none of the tofu or soymilk made by companies that participated in our scorecard ever use hexane**.

MANY CONSUMERS CHOOSE ORGANIC FOODS in order to avoid chemical residues in their food. USDA organic standards strictly prohibit the use of hexane, the neurotoxic petrochemical solvent used by conventional grain processors. Hexane is used to extract oil from grains such as corn, soy, and canola. It is a cost-effective and highly efficient method for separating whole soybeans into soy oil, protein, and fiber. In conventional food processing, soybeans are immersed in what the industry calls a "hexane bath" before they are further processed into ingredients such as oil, soy protein isolate, or texturized soy protein (TVP). The soy protein ingredients in most nonorganic foods such as vegetarian burgers and nutrition bars are processed with the use of hexane.

Unfortunately, not all foods with "organic" on the label are guaranteed to be free of hexane-extracted soy ingredients. First, products such as Clif Bars with the label "made with organic oats and soybeans" are required by law to have 70% organic ingredients—the remaining 30%, however, can legally be hexane extracted. Second, even foods with the "certified organic" label could have minor hexane-extracted ingredients, such as soy lecithin, historically not available in organic form, and DHA oil.

What Is Hexane?

HEXANE IS A PETROLEUM BY-PRODUCT of gasoline refining.[82] It is a highly explosive neurotoxic chemical. Soybean processing plants release this pollutant into the environment, both in the air and water.

In the air, hexane reacts with other pollutants such as oxides of nitrogen to form ozone (O_3). While ozone is essential in the upper atmosphere, excess ozone at ground level is a serious pollutant that is a hazard to human health and the environment.[83] For this reason, the EPA lists hexane as one of 188 hazardous air pollutants. Hazardous air pollutants, as defined by the EPA, are airborne compounds "that cause or may cause cancer or other serious health effects, such as reproduc-

tive effects or birth defects, or adverse environmental and ecological effects."[84] In 2007, the last year for which data is available from the EPA Toxics Release Inventory, grain processors were responsible for more than two-thirds of all hexane emissions in the United States, releasing 21 million pounds of this hazardous air pollutant.[85] Other major emitters include tire factories and petrochemical plants.

A single Archer Daniels Midland (ADM) plant in Decatur, Illinois, released nearly 2 million pounds of hexane in the course of a year, making it the largest single-source emitter of this toxic air pollutant.[86] In the state of Illinois alone, food processors ADM, Cargill, Bunge, and others release almost 5 million pounds of hexane yearly.[87]

Solae, a major supplier of soy protein ingredients found in vegetarian burgers, energy bars, and other "all-natural" foods, emitted nearly one million pounds of hexane, as a pollutant, from its factories in Ohio and Illinois. Its plant in Bellevue, Ohio, is the nation's seventh largest emitter of hexane, releasing more of this hazardous air pollutant than other major sources such as Exxon Mobil's oil refinery plant in Baytow, Texas, and Firestone's tire factory in Orange, Texas.

Photo source: istock.com

Hexane, used in "natural" soy protein processing, is highly explosive and has caused deaths of workers in soybean processing plants.

When released with a processing plant's wastewater, hexane can lead to explosions. In 2003, investigators traced an explosion at a Winchester, Kentucky, wastewater treatment plant to a Martek Bioscience factory, which released hexane-tainted water into the wastewater stream.[88] Martek manufactures DHA-rich oils for foods such as infant formula. On August 29, 2003, two workers died when hexane gas in a Sioux City, Iowa, soybean processing plant ignited.[89] Explosions caused by hexane are not uncommon; explosions have also occurred in South Africa (two dead),[90] Italy (four dead),[91] and Mexico (200 dead, 600 injured).[92] None of this is too surprising given that hexane is a byproduct of gasoline refinement.

Even the truck drivers who are hired to transport hexane are put in danger: in 2001, a tanker truck carrying 4,500 gallons of hexane exploded and burst into flames, not only setting fire to two homes, but also critically injuring the truck driver and the driver of another vehicle.[93]

As a neurotoxin, hexane also poses a danger to the employees working in food processing plants. Workers who come in dermal (skin) contact with hexane experience immediate irritation characterized by erythema and hyperemia, and they develop blisters after several hours. The Occupational Safety and Health Administration (OSHA) sets the permissible exposure level at 500 parts per million (ppm) for workers with 8-hour exposures to hexane. If exposed to 800 ppm of hexane for 15 minutes or longer, workers can develop eye and upper respiratory tract irritation and will show mild symptoms of narcosis (unconsciousness caused by a chemical substance) if exposed to 1,000 ppm. At high exposure levels, workers will develop vertigo, headache, and nausea (after 10 minutes of exposure to 5,000 ppm).[94]

Workers who are chronically exposed to hexane levels ranging from 400 to 600 ppm, with occasional exposures of up to 2,500 ppm, have developed polyneuropathy, a neurological disorder. In these cases, distal symmetrical muscle weakness is common, and nerve biopsies show nerve damage. A recently published peer-reviewed article in *Environmental Health Perspectives* hypothesizes that occupational exposure to hexane may contribute to the development of Leber hereditary optic neuropathy, a disease that causes loss of vision.[95] Chronic exposure may also lead to blurred vision, restricted visual field, and optic nerve atrophy.[96]

All these contingent liabilities certainly contradict the beliefs of organic consumers that they are supporting a different kind of environmental ethic and "doing no harm" in their food purchasing decisions.

Hexane Residues in Food

The FDA does not set a maximum residue level in soy foods for hexane, and does not require that food manufacturers test for hexane residues. Very little research has been conducted concerning the potential effects of consuming hexane residues in edible oils and other processed foods that contain soy protein, such as infant formula, energy bars, protein powders, and meat analogs. Food processors that use hexane tend to assume that nearly all hexane residues evaporate before reaching the consumer, but this may not be the case.

Studies on hexane-extracted oils show that not all hexane evaporates before consumption—residues can appear in foods. According to EPA reports,[97] small quantities of solvent (up to 0.2 percent by volume of oil) can be present in oil after extraction, even after solvent recovery by film evaporators and a distillation stripper. A Swiss team of scientists tested various oils and found hexane residues in some of the tested oils.[98]

Moreover, residue testing has tended to focus on the oil, but the protein and fiber that are left after extraction have also come in contact with hexane. To test for the possibility of hexane residues on these other soy components and products, The Cornucopia Institute sent a sample of hexane-extracted soy oil, soy meal, and soy grits to an independent analytical laboratory (registered with the FDA and USDA). While there was less than 10 ppm hexane residue in the oil, both the soy meal and soy grits contained higher levels of hexane residues. The soy meal contained 21 ppm hexane and the grits contained 14 ppm. These tests raise important questions regarding the presence of hexane residues in everyday foods.

The effects of consuming foods that contain hexane-extracted ingredients are not known. As with most of the approximately 70,000 chemicals that are registered with the EPA for commercial use, hexane has been tested for its effects on workers but has *not* been tested for its effects on consumers as part of the human diet. And, it appears that no studies looking for synthetic breakdown constituents of hexane in food are available. Other hydrocarbon solvents, such as benzene, can interfere with human development, causing a spectrum of disorders including structural birth defects, hyperactivity, attention deficits, reduced IQ, and learning and memory deficiencies.[99] Hexane is considered to be less toxic than benzene, but few studies are available on the long-term effects of consuming hexane-extracted foods.

The Cornucopia Institute is petitioning the FDA to examine the effects of hexane in foods. First, Cornucopia is asking the FDA to test commonly consumed soy derivatives, such as soy protein isolate, for hexane residues. Second, if residues are indeed found to be common in foods, the FDA should provide information to consumers regarding the effects of these chemical residues on consumers, including infants and children.

We believe that this research is especially important given the fact that most soy-based infant formulas contain ingredients that have been hexane extracted. In fact, nearly every major ingredient in conventional soy-based infant formula is hexane extracted. Infants consume much greater quantities of food compared to their body weight than adults, and formula-fed infants consume the same foods day after day, for many months. If hexane residues are present in conventional soy-based infant formula, their effects on infants should be investigated.

Hexane and "Natural" Soy Foods: Vegetarian Burgers and Meat Analogs with Soy Protein

Unless a soy-based vegetarian burger or meat analog product is organic, with the green USDA Organic seal on the package, it almost certainly contains hexane-extracted soy protein, such as soy protein isolate or soy protein concentrate. Texturized vegetable protein is also a common ingredient in meat analogs and is usually a soy isolate or concentrate that has been further processed with high heat and pressure to resemble the texture of real meat.

To make conventional soy protein ingredients, food manufacturers start the process by literally immersing soybeans in a hexane "bath." A common additional technique to further separate out the protein is bathing soy flakes in aqueous alcohols such as methanol, ethanol, or isopropyl alcohol. Processors also commonly use acid and alkaline solutions to adjust the pH, and use high heat and high pressure to texturize the soy protein.

Organic soy protein has been available for years, but food manufacturers have been hesitant to use it because of its lower

protein content and increased cost. Hexane is very effective at extracting oil, and the alternative heating method and expeller press techniques used, to date, to produce organic soy protein isolate have resulted in a product with a lower protein content. Hexane-extraction results in soy protein isolate containing close to 99% protein, whereas mechanical extraction results in protein levels closer to 92% to 94% (but never lower than 90%).

One company, Green Planet Farms™, aims to change this. In 2007, this company developed a water-based process to make a soy protein isolate with a higher protein content, comparable to conventional soy protein isolate, yet processed completely without the use of harsh chemicals. It calls its manufacturing protocol the "G2O process," and the resulting soy protein is guaranteed to be free of solvent residues. The processing procedure is allegedly so clean that the company says it did not have to apply for a permit from the EPA.

Currently, hexane-extracted soy protein is found in the vast majority of nonorganic foods with soy ingredients that appeal to health-conscious, environmentally conscious, and vegetarian consumers. For example, Gardein™ is a Canadian company that produces meat analogs—soy-based "chicken" and soy-based "beef"—for brands and private labels including Yves Cuisine®, Morningstar Farms®, Trader Joe's, and It's All Good Foods®, and for grocery store prepared foods departments such as Whole Foods. While the company describe its process for making these meat analogs as "pure and simple," it does not mention that it starts with hexane-extracted soy protein.

Shoppers who choose these foods think that they are making a healthy and environmentally friendly decision, without knowing that the soy "chicken" or vegetarian burger was processed with hexane. With the development of new processes to make hexane-free soy protein isolate, we hope that consumers will demand hexane-free soy in their vegetarian foods, and that companies will respond by offering it.

Green Planet Farms developed a water-based process to make a soy protein isolate with a higher protein content, comparable to conventional soy protein isolate, yet processed completely without the use of harsh chemicals.

TABLE 1: VEGGIE BURGERS AND HEXANE USE

NO HEXANE-EXTRACTED SOY INGREDIENTS USED	HEXANE-EXTRACTED SOY INGREDIENTS USED
Amy's Kitchen	Boca Burger, conventional
Asherah's Gourmet	Franklin Farms
Boca Burgers "Made with organic soy"	Garden Burger
Helen's Kitchen	It's All Good
Morningstar "Made with organic"	Lightlife
Superburgers by Turtle Island	Morningstar Farms
Tofurky	President's Choice
Wildwood	Soy Boy
	Taste Above
	Trader Joe's
	Yves Veggie Cuisine

Products in the red column use non-organic soy protein. Our research suggests that these soy protein ingredients were extracted with the use of hexane, a neurotoxic chemical solvent that is prohibited in organic food processing. We strongly urge the companies that manufacture these products to switch to non-hexane extracted soy products.

Table 1 gives a quick overview of the major brands of vegetarian burgers on market shelves, and whether they contain hexane-extracted soy protein.

Hexane and Food Labeled as "Made with Organic Ingredients"

Organic consumers wanting to avoid foods processed with hexane can feel confident that all major ingredients in organic foods are indeed hexane-free. But consumers should also be aware that certain foods bearing a "made with organic ingredients" label, such as Clif Bars, contain conventional soy protein, which is hexane extracted.

Clif Bars appeal to organic consumers with the following statement on its web site: "And food, made right, can make the world a better place. That's why we use organic ingredients in all our products." What customers may not understand is that this does not mean that Clif Bars are 100% organic, or even 95% organic. Clif Bars comply with the 70% organic labeling requirement (the 70% category is the third and lowest of the USDA's organic labels and allows for manufacturers to use the organic label if at least 70% of the product's ingredients are organic), and their soy protein isolate comes from conventionally grown soybeans and is hexane extracted. We use Clif Bar & Company as an example here because of its prominent position in the natural foods marketplace.

Consumers should be aware that certain foods bearing a 'made with organic ingredients' label, such as Clif Bars, contain conventional soy protein, which is hexane extracted.

Industry research indicates that Clif Bar & Company's soy protein isolate comes from Solae. Clif Bar & Company refused to complete our survey, and the company's executives ignored repeated attempts by The Cornucopia Institute to contact them, including by registered mail, so we cannot confirm their sourcing. But what we do know for certain (according to their ingredient labels as of April 2009) is that the soy protein isolate used in Clif Bars is not organic. (*Note:* Clif Bar packaging is sealed in such a way that it is difficult for consumers to read the ingredients list without purchasing the product first and ripping the wrapper apart).

TABLE 2: NUTRITION BARS AND HEXANE USE

ORGANIC, NO HEXANE-EXTRACTED INGREDIENTS	ORGANIC OR WITH ORGANIC SOY, BUT SOME MINOR INGREDIENTS ARE HEXANE-EXTRACTED	SOY INGREDIENTS ARE NOT ORGANIC AND THEREFORE LIKELY TO BE HEXANE-EXTRACTED
Alpsnack	Health Valley Organic bars	Clif Bar
Bear Fruit Bar	NuGo organic	Kashi GoLean Chewy Bars
Bumble Bar	Odwalla Bar	Luna Bar
Garden of Life		Power Bar (including Harvest, Nut Naturals, and Protein Plus)
Nectar Bar		Pria Bar
Nutiva		SoyJoy
Optimum Bar (by Nature's Path)		Zone Perfect Bar
Organic Food Bar		
Yoga Bar		

Products in the red column use nonorganic soy protein. Our research suggests that these soy protein ingredients were extracted with the use of hexane, a neurotoxic chemical solvent that is prohibited in organic food processing. We strongly urge the companies that manufacture these products to switch to non-hexane-extracted soy products.

Clif Bar & Company writes on its web site that "food grown organically—without the use of toxic pesticides or synthetic chemicals—is better for the planet, the body and the soul." We strongly agree with this statement, which is why The Cornucopia Institute strongly urges Clif Bar & Company to discontinue using hexane-extracted soy protein.

To find nutrition bars that are truly organic, see Table 2.

Hexane Use in Organic Foods

Two minor hexane-extracted ingredients are found in certain processed organic foods, including organic infant formula. Both ingredients can be sourced organically, which is why The Cornucopia Institute believes no organic food should contain these conventional, hexane-extracted ingredients.

SOY LECITHIN

Soy lecithin usually makes up no more than 0.5% to 2% of a processed food, yet its special characteristics as a stabilizer and emulsifier make it a crucial ingredient in foods such as chocolate, cooking sprays and infant formula.

Processing conventional soy lecithin involves the use of hexane, and until recently, an organic, non-hexane-extracted soy lecithin did not exist. Because an organic version did not exist in 1995, when the organic standards were first drafted, soy lecithin was included in sections 605 and 606 of the USDA organic standards, the "National List of Allowed and Prohibited Substances." These sections of the organic standards list conventional ingredients that may be included in small amounts in organic foods (less than 5%), after careful review by the National Organic Standards Board, provided an organic version of the ingredient is not commercially available.

Through significant investment, Clarkson Grain, an Illinois-based company, developed an organic, expeller-pressed soy lecithin, which became commercially available in 2004. Its organic soy lecithin is guaranteed to be free of hexane residues, since the soybeans used to produce it are never in contact with hexane. This nonchemical method of producing soy lecithin also means fewer pounds of hexane are released into the air and that no employees are exposed to occupational hazards—distinct benefits to society. Today, organic soy lecithin is commercially available to all organic food manufacturers who need it. Yet many organic foods on the market continue to list conventional soy lecithin among their ingredients.

The federal organic standards clearly state that conventional ingredients such as lecithin may be added to organic foods only if they are not commercially available in organic form, so any food manufacturer adding conventional soy lecithin to a certified organic food is in violation of federal law. There is no apparent reason to choose the hexane-extracted lecithin except the price difference—conventional costs $1.20 per pound and organic costs $8.50 per pound—and convenience. The argument that the organic version does not work as well as the conventional is likely motivated by this price differential. After all, some manufacturers are satisfactorily using the organic version—why shouldn't all others? The corporate-friendly organic certification agent Quality Assurance International and others allow these improprieties to continue by certifying products containing the conventional, hexane-extracted lecithin. And Bush

Processing conventional soy lecithin involves the use of hexane, and until recently, an organic, non-hexane-extracted soy lecithin did not exist. Today, organic soy lecithin is commercially available to all organic food manufacturers who need it. Yet many organic foods on the market continue to list conventional soy lecithin among their ingredients.

administration officials at the USDA did not step in to compel QAI and other certifiers to enforce the standards.

The only way to ensure that all organic foods contain organic lecithin is to remove lecithin as an approved conventional substance on the National List. Clarkson Grain filed a petition with the USDA to remove soy lecithin, and the National Organic Standards Board, at its May 2009 meeting, voted in favor of the petition. Unfortunately, due to corporate pressure, the National Organic Standards Board voted to keep "de-oiled" (dry) lecithin on the list.

There are two types of lecithin, liquid and de-oiled. De-oiled lecithin is not yet available in organic form, because an organic alternative to using the solvent acetone, in the de-oiling process, has not been developed.

Since acetone can be harmful to workers when inhaled, potentially leading to irritation, headache, blurred vision and narcosis,[100] the Occupational Safety and Health Administration (OSHA) has set a maximum concentration limit in workplace air of 1,000 ppm of air for an 8-hour workday over a 40-hour week to protect workers.[101] According to the Centers for Disease Control, ingesting small amounts of acetone, such as through residues on food, is not harmful, but the effects of long-term exposures have not been studied in people.[102] In animal studies, long-term exposure to acetone was linked to kidney, liver and nerve damage, as well as increased birth defects.[103] Unlike hexane, acetone is not listed as a hazardous air pollutant with the EPA.[104]

It has been suggested that the choice to use de-oiled lecithin is one of convenience for the manufacturer; if a company is truly committed to organic integrity, it can find a way to use liquid organic lecithin even in dry foods such as powdered infant formula. In addition to being processed with acetone, the conventional "de-oiled" lecithin that will remain allowed in organic food will be made with conventionally grown soybeans and extracted with the use of hexane.

Since this was the first time that the National Organic Standards Board considered a petition to remove a food ingredient from the list, this 2009 vote set a precedent with regard to the NOSB's willingness to remove ingredients from the National List when organic alternatives become available. Their decision to keep de-oiled lecithin on the List, however, is disappointing since it is hexane- and acetone-extracted and is chosen over the liquid form primarily as a matter of convenience for food manufacturers.

Organic consumers expect foods that were produced in a more environmentally and socially responsible way—and realize that this often means that farmers and food processors must sacrifice some convenience in the quest for producing food sustainably. Moreover, organic consumers expect the green "USDA certified organic" label to reflect this commitment to an alternative food production system where low cost is not the top priority. Keeping hexane- and acetone-extracted de-oiled lecithin on the National List indicates a further erosion of the integrity of the national organic standards. The Cornucopia Institute, and our allies, will continue to highlight concerns involving synthetic and nonorganic ingredients inappropriately utilized in organic production.

Since organic soy lecithin is available but more expensive, checking an ingredients label for organic soy lecithin is a great way to determine how committed a company is to organics. If a company uses organic soy lecithin, they are paying more, in return for a more truly organic product. They show their commitment to organics and their support to the companies that are pioneers in developing ingredients that are organic. Consumers should be aware of this issue so that they can support these companies in the marketplace.

NUTRITIONAL DHA AND ARA OILS

On or shortly before one month of age, my son Aidan began experiencing violent reactions to the Similac® formula with DHA. Symptoms included: explosive diarrhea, projectile vomiting, dehydration, excessive gas, weight loss, excessive crying, and loss of sleep. It was difficult to get him to finish a complete bottle because he would begin screaming half way through. This screaming continued, along with pulling his legs up and writhing, for approximately two hours after the feeding. When it was time for him to eat again, the process would start all over again. In all, over a six month period, I tried every formula I could find, including: Nutramigen, Alimentum, ProSobee--and all included DHA/ARA. As a last resort, I gave him Neocate, also with DHA, but it produced the same results as all of the other formulas. It was not until I accidentally bought a non-DHA formula that all of the symptoms stopped at approximately 6.5 months of age. The symptoms stopped approximately 24 hours after using the non-DHA formula, if not sooner.

– Holly Schneider, Taylor, Michigan
(The Cornucopia Institute has more than 100 similar adverse reaction reports on file.)

Algal DHA and fungal ARA oils are hexane-extracted ingredients that are added to some organic foods, including organic infant formula and Horizon Organic milk with DHA. DHA is a long-chain, polyunsaturated omega-3 fatty acid that is naturally found in fatty fish such as salmon and sardines. Martek Biosciences Corporation produces a vegetarian and not quite identical DHA additive called Life'sDHA™ for foods, used in products such as Silk soymilk with DHA, Rachel's® yogurt, and nearly all infant formula on the market. Martek's Life'sDHA is produced by immersing fermented algae in hexane to extract the oil. The company's Kentucky plant, where Life'sDHA is produced, emitted nearly 200,000 pounds of hexane into the environment in 2006.

Photo source: istock.com

According to the USDA organic regulations, Martek's Life'sDHA should be prohibited in organic foods because it is a synthetic additive that is not listed as an approved substance on the National List of Approved and Prohibited Substances. Moreover, it should not be added to organic foods because it is hexane extracted.[105] The Cornucopia Institute has filed legal complaints against the manufacturers that we allege are illegally adding these hexane-extracted oils.[106]

The Cornucopia Institute is especially concerned that these oils, when added to infant formula, are making babies very sick. These findings are detailed in The Cornucopia Institute's report Replacing Mother—Imitating Human Breast Milk in the Laboratory, which presents disturbing research indicating that these hexane-extracted algal and fungal oils lead to virulent diarrhea, vomiting, and other gastrointestinal problems in some babies. In some cases this has led to significant health complications, failure to thrive, and hospitalizations. The report is available for free download at www.cornucopia.org.

The report also outlines how formula manufacturers profit tremendously from adding DHA and ARA (another fatty acid, which Martek extracts from fungi by means of hexane) to formula. It allows them to misleadingly advertise their formula as being "as close as ever to breast milk," and "supporting brain and eye development." The vast majority of scientific studies show no meaningful benefits from adding DHA and ARA to infant formula.[107] Meanwhile, some infants continue to get sick from these oils, while infant formula companies refuse to acknowledge the serious problems and side effects associated with their lucrative additives. There is no information about possible side effects listed on the packaging or on the manufacturers' web sites. Parents and health care providers have been left on their own to discover the possible correlation between

If your infant experienced adverse reactions from hexane-extracted algal and fungal oils, please file an adverse reaction with the FDA's Medwatch program (https://www.accessdata.fda.gov/scripts/medwatch/medwatch-online.htm) and send a copy of your report to the Cornucopia Institute (cultivate@cornucopia.org).

Be sure to explain in the report why you believe that DHA and ARA are to blame. Most often, parents try several different formulas (cow milk-based, soy-based, hypoallergenic, lactose-free) with no success until they try a formula without DHA/ARA, and symptoms disappear, often within 24 hours. Other times, parents switch to a similar formula without DHA/ARA, such as Baby's Only, and symptoms disappear.

When you file your adverse reaction report with the FDA, please specify why you believe that DHA/ARA caused your baby's symptoms. If your baby's symptoms were not due to common feeding problems such as lactose intolerance or allergic reactions to dairy or soy protein, but due to the DHA/ARA specifically, it is important for the FDA to understand this.

sick babies and these novel nutritional additives.

There is one conventional manufacturer that supplies infant formula without Martek's DHA/ARA supplementation (Nestlé®) and one organic supplier that does not use these novel oils (Baby's Only®).

Hexane and Infant Formula

The ideal food for human infants is human milk, and breastfeeding is by far the healthiest option. There is irrefutable scientific evidence that no formula can provide the same benefits as breastfeeding—formula is deficient in the antibodies that protect against disease, special enzymes that aid digestion, fatty acids that aid development, and so forth. But despite these insurmountable shortcomings of formula, manufacturers have a responsibility to make formula as close to human milk as possible, and as safe and pure as possible. Using only organic ingredients is a logical move for formula makers. Unfortunately, infant formula manufacturers seek to cut costs by using the cheapest ingredients, which is why conventional formula contains mostly genetically engineered and hexane-extracted ingredients.

None of the major companies making infant formula, such as Mead Johnson (Enfamil®) and Abbott Nutrition (Similac), offer an organic soy-based formula (Similac does offer a dairy-based organic version). Nonorganic soy-based formulas' major ingredients are hexane extracted from genetically engineered corn and soybeans. For many infants, soy-based formula is the only food they consume for the first months of their life—food whose major ingredient was processed by immersion in a highly explosive, neurotoxic petrochemical. Nonorganic infant formulas are also not guaranteed to be free of genetically engineered ingredients (many with limited, if any, testing related to human health impacts). Mead Johnson (Enfamil) customer representatives tell consumers that it would be too difficult to source non-GEO ingredients, since most soybeans and corn in the United States are genetically engineered.[108]

When asked if they have an organic formula available, Mead Johnson (Enfamil) representatives respond that "our ingredients are safe so it has not been necessary for Enfamil to develop an organic version."[109] But perhaps it is more likely that Mead Johnson is unwilling to source ingredients that are guaranteed GEO-free, produced without synthetic fertilizers and pesticides, and processed without hexane because these ingredients are slightly more expensive. As a publicly traded corporation, Mead Johnson has a legal obligation first and foremost to return profits to its shareholders. The safety of its ingredients—and the well-being of the babies consuming their formula—is of concern only in relation to the company's ability to make a profit and contraints of regulatory law.

Mead Johnson currently charges more for its nonorganic soy-based formula than two of the three organic soy-based formula brands on the market. Formula makers such as Mead Johnson and Abbott Nutrition could use only the cleanest and safest ingredients—using soy protein isolate that has not been bathed in hexane should be a given. Parents who buy formula should demand that these companies stop using hexane-extracted soy protein isolates and oils. Meanwhile, they can purchase organic formula for nearly the same price.

Currently, only three organic soy-based formulas are available on market shelves: PBM Nutritionals' Vermont Organics®, The Hain Celestial Group's Earth's Best®, and Nature's One's Baby's Only. All three brands do not use hexane to extract soy protein from soybeans, or to process their vegetable oils.

Hain Celestial (Earth's Best) and PBM Nutritionals (Vermont Organics) do not go the extra mile of using only the purest, organic ingredients. Both formulas contain the same ingredients. Although certified organic, both contain conventional, hexane-extracted soy lecithin. They also contain the additives DHA and ARA from Martek Biosciences. As stated above, these oils are extracted with the use of hexane from fermented algae and fungus. An earlier investigation by The Cornucopia Institute reported that a subset of infants appear unable to tolerate these novel oils, and experience severe gastrointestinal distress when consuming formula with Martek's DHA and ARA. For more information about adverse effects to Martek's DHA and ARA, see www.cornucopia.org/replacing-mother-infant-formula-report/.

Martek's Life'sDHA, which is added to foods as a source of omega-3 fatty acids, is produced by immersing fermented algae in hexane to extract the oil. The Cornucopia Institute is especially concerned that these oils, when added to infant formula, are making some babies very sick.

Nature's One's Baby's Only Organic is marketed as a "toddler formula," but it is formulated to meet the nutritional requirements mandated by law for infant formulas. It is the only organic baby formula on the market that does not contain Martek's hexane-extracted algal DHA and fungal ARA oils. Nature's One also opts to source only organic ingredients when available, therefore the soy lecithin is organic and processed without the use of hexane.

Conclusion

Part I of this report covers the Organic Soy Scorecard, the second installment of The Cornucopia Institute's Organic Integrity Project, which aims to achieve more than simply giving organic consumers the story behind their food. The scorecard showcases the heroes in the organic soy foods industry—the companies that source domestically, go out of their way to avoid contamination with genetically engineered organisms, use only organic ingredients to flavor their products, and so on. But above all, the scorecard lists, in the top categories, the companies that participated and are open and honest with their customers regarding their sourcing and production practices. The scorecard empowers organic consumers and wholesale buyers with the knowledge necessary to make informed decisions in the marketplace—to support the companies that are serious about organic values and to avoid the companies that pay mere lip-service to these values while profiting from consumers' willingness to pay more in support of organic agriculture and food processing. Consumers are encouraged to use the scorecard to support ethical companies in the marketplace.

Consumers are encouraged to use the Cornucopia's Organic Soy Scorecard to support ethical companies in the marketplace.

Part I of this report also explores the reasons why consumers should support companies that buy organic soybeans domestically. The problems with sourcing organic soybeans from China are based not merely on "gut-feelings" that Chinese imports cannot be trusted. USDA staff members, when auditing certifying agents working in China, discovered many instances of carelessness on the part of the certifying agencies. These findings provide evidence to support long-standing criticisms from the domestic organic farming community that oversight of the national organic standards is too lax on some Chinese farms and processing facilities. Also, it took the USDA five years to visit Chinese farms for the first time—meaning that some of the noncompliances were allowed to go on for years before they were discovered. Considering the gravity of some of these noncompliances—Chinese inspectors who are not familiar with the USDA organic standards, certifying agencies that do not provide the USDA organic standards to all clients that apply for certification, and so forth—the USDA should have assessed much sooner whether the system was working in China.

Part II of the report exposes not only the corporate origins of the heart healthy claim on soy foods, but what industry insiders have, for years, called "the dirty little secret" of the natural foods business: hexane. Hexane is a neurotoxic petrochemical solvent used to process virtually all nonorganic soy ingredients, including soy protein isolate and other common ingredients in "natural" vegetarian burgers, protein shakes, and nutrition bars. Again, our report aims to educate consumers while empowering them to make marketplace decisions in support of the companies that make the effort to avoid hexane. If consumers discover, through our report, that their favorite foods are processed with hexane, they are also encouraged to write to these companies to encourage them to source cleaner, organic, non-hexane-extracted ingredients instead. Sample letters to companies, as well as company addresses, are available on our web site.

We hope that the information contained in this report and scorecard will help conscientious consumers make informed and positive food choices in the marketplace, inching our food system closer toward sustainable and healthy food availability, environmental stewardship, and fairness for family-scale farmers.

Appendix A: Scorecard Ratings

Soy Survey Ratings

Here we present how we determined each product's score. Each section below describes one particular aspect of soy production and shows the possible scores for that aspect. For the final score, each of the ten aspects was given equal weight: for each company, the scores for each aspect were added together and divided by ten.

OWNERSHIP STRUCTURE

100	Family business owned by farmers (soybeans are grown and processed into final product on the farm)
90	Farmer-owned or worker-owned cooperative
80	Family-owned business or sole proprietorship; or corporation with direct ties to farmers
70	Privately held, not family business
65	Danone 80%
60	Investor owned
0	No answer

PERCENTAGE ORGANIC SOYBEAN PURCHASES

Of all soybeans or soybean products purchased by the company, what percentage is certified organic? Non-GMO? Conventional?

100	Company purchased only organic soybeans or soy products, or grows their own organic soybeans
90	Company purchased more than 85% organic soybean or soy product, no GMOs
60	Company purchased less than 85% organic soybeans or soy products, no GMOs
30	Company purchased GMO soybeans or soy products
0	No answer

DISCLOSURE OF SOURCING INFORMATION

100	Full and open disclosure
75	Partial disclosure: full and open sourcing disclosure
50	Partial disclosure: no farmer or broker contact provided
0	No disclosure

CERTIFIER

Ratings for certifiers are based on the history and integrity of the certifying organization and its history of approving certification of farms that are suspected of creating/exploiting loopholes in the current organics regulations.

100	CCOF California Certified Organic Farmers
100	GOA Global Organic Alliance
100	IDALS Iowa Department of Agriculture and Land Stewardship
100	MOSA Midwest Organic Service Association
100	NOFA-VT Northeast Organic Farming Association–Vermont
100	One Cert
100	Organic Crop Improvement Association (OCIA)
100	Oregon Tilth Certified Organic (OTCO)
100	Pacific Agricultural Certification Society (PACS British Columbia)
75	QAI Quality Assurance International
100	QCS Quality Certification Services
100	Washington State Department of Agriculture

ORGANIC PRODUCT LINE

Percentage of the company's soy products that are certified organic, non-GMO, and conventional.

100	Company markets 100% organic products
90	Company markets more than 85% organic products, no GMOs; or company markets a combination of organic and "made with organic soybeans" products
60	Company markets less than 85% organic products, no GMOs; or company markets only "made with organic soybeans" products
30	Company markets products with GMOs; or company has private-label products with an organic line

SOURCING AND FARMER RELATIONSHIPS

100	Company purchases directly from farmers, company representatives visit the farms
90	Company purchases directly from farmers, farms are not visited
80	Company purchases soybeans from a broker who purchases only North American soybeans and is transparent (participated in the project); or the company's copacker purchases directly from farmers and was transparent
70	Company purchases some soybeans directly from North American farmers (claims verified) and some from brokers who claim to provide only North American soybeans, but these claims could not be verified; or company purchases soybeans or soy products from a broker or supplier who shared a country of origin statement stating the soybeans are of North American origin
60	Company purchases soybeans from a broker/company and claims they source only North American soybeans, but these claims could not be verified
50	Company purchases soybeans of Chinese origin, company representatives visit the farms to ensure the farmers follow the USDA organic standards
40	Our research indicates that the supplier uses North American–grown organic soybeans, but the supplier did not participate in the project
30	Company purchases soybeans from a broker who supplies Chinese or Brazilian soybeans; or company identified their copacker but the copacker refused to participate and disclose sourcing information
0	Company refused disclose sourcing information

MANUFACTURING

100	All manufacturing is done in-house
95	Manufacturing done by a copacker with close ties to the company and full disclosure
90	Products are manufactured by a copacker with full disclosure
75	Products are manufactured by copackers, at least one of which provided full disclosure
25	Products are manufactured by a copacker without full disclosure
0	No answer or copacker not identified

PREVENTION OF GMO CONTAMINATION

100	Company performs GMO contamination testing on every load
80	Company is enrolled in the Non-GMO Project; or company tests occasionally and has internal monitoring program in place
70	Company performs its own GMO contamination tests occasionally
40	No testing
0	No answer

FLAVORS

100	Only organic food ingredients used for flavor, or no flavors added
100	Only 100% certified organic natural flavors used
75	Some flavors certified organic but not all
50	Flavors not certified organic
0	No answer

SOY LECITHIN

100	Organic soy lecithin or no lecithin used
50	Conventional soy lecithin
0	No answer

Appendix B: Letter to Companies

Dear ___,

I enjoy your (((insert product name))) very much, but was disappointed to see it listed at the bottom of the Cornucopia Institute's Organic Soy Scorecard.

I am very interested in knowing the story behind my food, which is one of the many reasons why I buy organic foods. Our conventional food system is very industrialized, centralized, and leaves customers feeling disconnected from their food. Buying organic foods is one way in which I can feel connected again to the foods I eat. When I buy organic, I trust that this choice in the marketplace has a positive impact on the soil, the environment and the family farming community. So you can imagine my disappointment to see (((insert company name))) listed as one of the companies that refused to participate in Cornucopia Institute's scorecard. I expected to learn more about the company that I have been loyally supporting, only to find out that you are not willing to openly share information about the foods you produce with customers like myself.

I would like to remain a loyal customer, but I also want to buy products that are rated highly on the Cornucopia Scorecard. Therefore, I urge you to participate in the Cornucopia scorecard project by filling out their survey and providing full and open disclosure.

Sincerely,

Your name

Your address

Appendix C: List of Companies

Brand Name	Corporate Affiliation	Address	City	State	Postal Code	CEO/President/ Contact Name	Email/Web	Phone
Archer Farms	Target	PO Box 9350	Minneapolis	MN	55440	Robert Ulrich		
Azumaya	Vitasoy	1 New England Way	Ayer	MA	1432	Walter Riglian		978-772-6880
Baby's Only	Nature's One	855 Busch Court	Columbus	OH	43229	Jay Highman		614-846-4560
Best Choice	Best Choice Foods, B C Food Group LLC	5500 South Fwy Ste 195	Fort Worth	TX	76115-3903	Tom Brown	sales@bestchoicefoods.com	817-870-5066
BJ's	BJ's	1 Mercer Road	Natick	MA	1760	Herb Zarkin		
Boca Burgers	Kraft	910 Mayer Ave	Madison	WI	53704	Tom Moe		608-285-3311
Central Soy	Central Soyfoods	710 E 22nd St.	Lawrence	KS	66046	Lori Kruger - Plant Manager	centralsoyfoods@netscape.com	785-312-8638
Costco	Costco	PO Box 34331	Seattle	WA	98124	Beverly Akada		
Country Cream Soy Milk	Grandma's Country	386 W. 9400 S.	Sandy	UT	84070	Jay Tims	grandma@grandmas-country.com	801-748-0808
Earth's Best	Hain Celestial	58 South Service Road	Melville	NY	11747	Irwin Simon	jtesdahl@haincelestial.com	631-730-2200
Edensoy	Eden Foods	701 Tecumseh Road	Clinton	MI	49236	Michael Potter	mikeeden@edenfoods.com	517-456-7424
Essensia	Albertson's private label - Supervalu now owns, info same as Supervalu	11840 Valley View Road	Eden Prairie	MN	55344	Jeffrey Noddle, CEO	see below*	877-932-7948
FarmSoy	FarmSoy	116 Second Road	Summertown	TN	38483	Barbara Elliott	barbara@farmsoy.com	
Fresh Tofu		1101 Harrison Street	Allentown	PA	18103		info@freshtofu.com	610-433-4711
Full Circle	Topco	7711 Gross Point Road	Skokie	IL	60077	Steven Lauer		847-676-3030
Garden Burger	Kellogg Company	PO Box 3599	Battle Creek	MI	49016	David Mackay	kellogg@casupport.com	
Great Value	Walmart	702 SW 8th Street	Bentonville	AR	72716	Douglas Degn, Executive VP		
Green Cuisine	Green Cuisine	#5-560 Johnson Street	Victoria	BC	V8W 3C6	Andy Cunningham	through website: http://www.greencuisine.com/contactp.ihtml	250-385-1809
Harris Teeter Naturals	Harris Teeter	701 Crestdale Dr.	Matthews	NC	28105	Rodney Antolock		
Helen's Kitchen/Helen's Foods	Helen's Kitchen	1882 McGaw Avenue, Suite A	Irvine	CA	92614	Stephen Moore	info@helensfoods.com	866-EAT-TOFU x101
Island Spring Tofu		18846 103rd Ave SW	Vashon Island, WA		98070		info@islandspring.com	206-463-9848
Laura Lynn	Private label of Ingles Markets	Post Office Box 6676	Asheville	NC	28816	Robert Ingle	through website: http://www.ingles-markets.com/comments/customer_service/index.php	828-669-2941
Lifeway	Lifeway	6431 West Oakton Ave	Morton Grove	IL	60053	Julie Smolyansky	info@lifeway.net	847-967-1010
Miso Master Organic	Great Eastern Sun	92 McIntosh Road	Asheville	NC	28806	Leila Bakkum	lelia@great-eastern-sun.com	828-588-0151
Mori Nu Tofu	Morinaga Nutritional Products	2441 West 205th Street, Suite C102	Torrance	CA	90501	Yasuo Kumoda		310-787-0200
Morningstar Farms	Kellogg Company	1 Kellogg Square	Battle Creek	MI	49016	David Mackay	kellogg@casupport.com	
Nancy's	Nancy's	29440 Airport Road	Eugene	OR	97402	Sue Kesey	sue@nancysyogurt.com	541-689-2911
Nasoya	Vitasoy	1 New England Way	Ayer	MA	1432	Walter Riglian		978-772-6880
Nature Soy	Nature Soy	713 North 10th Street	Philadelphia	PA	19123	Yatsun Wen		215-765-3289
Nature's Basket	Giant Eagle private label	101 Kappa Drive	Pittsburgh	PA	15238	David Shapira, CEO		412-963-6200
Nature's Place	Food Lion	PO box 1330	Salisbury	NC	28150	Rick Anicetti		800-442-6049
Nature's Promise	Giant Carlisle	PO Box 249	Carlisle	PA	17013	Carl Schlicker, President and CEO		
Nature's Promise	Giant Landover (owned by Ahold)	8301 Professional Place, Suite 115	Landover	MD	20785	Jose Alvarez, President and CEO		
Nature's Promise	Peapod	9933 Woods Drive	Skokie	IL	60077	Andrew Parkinson, President and CEO		847-583-9400
Nature's Promise	Stop n Shop brand and Giant Food, Inc., both owned by Ahold, Inc.	1385 Hancock Street	Quincy	MA	2169	Jose Alvarez, President and CEO		

*through website: https://shop.albertsons.com/eCommerceWeb/GeneralInquires.do?action=viewGeneralComments

Brand Name	Corporate Affiliation	Address	City	State	Postal Code	CEO/President/ Contact Name	Email/Web	Phone
O Organics	Safeway	5918 Stoneridge Mall Rd	Pleasanton	CA	94588	Steven Burd		925-467-3000
Organic Valley	Organic Valley	One Organic Way	La Farge	WI	54639	George Siemon	george.siemon@organicvalley.coop	888-444-6455
Pacific Foods	Pacific Foods	19480 SW 97th Avenue	Tualatin	OR	97062	Carolyn Rayback	crayback@pacificfoods.com	503-692-9666
Pathmark	Pathmark Stores Inc	address on website: 2 Paragon Drive	Montvale	NJ	7645	John T Standley	contact private label through website: http://www.pathmark.com/contactUs_private.asp	866-44-FRESH
Pearl Soymilk	Kikkoman	Hwy 14, 6 Corners Rd	Walworth	WI	53184	Dan Miller	through website: http://www.pearlsoymilk.com/page/contactus/contactus.asp	262-275-6181
Pete's Tofu	Sunrise Soya Foods	729 Powell Street	Vancouver	BC	V6A 1H5	Peter Joe	consumer-info@sunrise-soya.com, pmitchell@sunrise-soya.com	800-661-2326
Publix		PO Box 407	Lakeland	FL	33802	Charlie Jenkins, Jr. (retires April 2008)		
Purely Decadent	Turtle Mountain	PO Box 21938	Eugene	OR	97402	Mark Brawerman, President	info@turtlemountain.com	541-338-9400 x3305
Roundy's Supermarket		PO Box 473	Milwaukee	WI	53201	Robert Mariano, CEO		414-231-5000
Sammi's Best	Best Life International, Inc.	1341 15th St	Clarkston	WA	99403-2460	Paul Baugh	bestlife@bestlifeint.com	800-407-7238
Save-a-Lot		NA	5747 Preston Hwy, Louisville, KY 40219-1305?			Bill Shaner	through website: http://save-a-lot.com/contact-us	
Shop Rite	Shop Rite Supermarkets	PO Box 7812	Edison	NJ	8818		through website: http://www.shoprite.com/ContactUs.aspx	800-ShopRite
Silk	White Wave	12002 Airport Drive	Broomfield	CO	80021	Joseph Scalzo		800-488-9283
Small Planet Tofu	Small Planet Tofu	330112 Hwy 2	Newport	WA	99156	Phil Spiegel	tofuphil@smallplanet-tofu.com	888-401-8638
So Delicious/Soy Delicious/ Purely Decadent	Turtle Mountain	PO Box 21938	Eugene, OR	OR	97402	Mark Brawerman, President		866-388-7853
So Nice	SoyaWorld, Inc.	PO Box 3018	Vancouver	BC	V6B 3X5	Maheb Natoo	consumer@soyaworld.com	888-401-0019
Soy Boy	Northern Soy	345 Paul Road	Rochester	NY	14624	Andrew Schechter	andy@soyboy.com	585-235-8970
Soy Deli	Quonghop	40 Airport Blvd.	South San Francisco	CA	94080	Frank Stephens	sales@quonghop.com	650-553-9900
Soy Feta	Sunergia	P.O. Box 1186	Charlottesville	VA	22902	Jon kessler	info@sunergiasoyfoods.com	800-693-5134
Soydream	Hain Celestial	4600 Sleepytime Dr.	Boulder	CO	80301	Irwin Simon	through website http://www.tastethedream.com/about_us/contact_us.php	800-434-4246
SoyUm	SunOpta, Inc.	3824 S. 93 Street	Hope	MN	56046	Allen Routh	soymilk@sunopta.com	877-918-0009
Stonyfield	Stonyfield	10 Burton Drive	Londonderry	NH	3053	Nancy Hirshberg		
Sunergia Soyfoods	Sunergia	P.O. Box 1186	Charlottesville	VA	22902	Jon Kessler		
Sunrich	SunOpta, Inc.	3824 S. 93 Street	Hope	MN	56046	Allen Routh	soymilk@sunopta.com	877-918-0009
Sunrise Soya	SoyaWorld, Inc.	729 Powell Street	Vancouver	BC	V6A 1H5	Peter Joe	pmitchell@sunrise-soya.com, consumer-info@sunrise-soya.com	800-661-2326
Surata Soy foods	Surata Soy Foods	325 W. 3rd Avenue, Building A	Eugene	OR	97401	Barney BeGuhl	surata@suratasoy.com	541-485-6990
Tofu Shop	Tofu Shop Specialty Foods	65 Frank Martin Ct	Arcata	CA	95521	Matthew Schmit	info@tofushop.com	707-822-7401
Tofurkey	Turtle Island	601 Industrial Ave, PO Box 176	Hood River	OR	97031	Seth Tibbet	info@tofurky.com	541-386-7766
Trader Joe's	private label	800 S. Shamrock Avenue	Monrovia	CA	91016	Dan Bane	through website: http://www.traderjoes.com/contact_us_selection.html	626-599-3700
Twin Oaks	Twin Oaks	138 W-Twin Oaks Road	Louisa	VA	23093		soyfoods@twinoaks.org	540-894-5126 x8750
Vermont Soy	Vermont Soy	180 Junction Road	Hardwick	VT	5843	Todd Pinkham	info@vermontsoy.com	802-472-8500
Vitasoy	Vitasoy	1 New England Way	Ayer	MA	1432	Walter Riglian		

Brand Name	Corporate Affiliation	Address	City	State	Postal Code	CEO/President/ Contact Name	Email/Web	Phone
Wegman's		1500 Brooks Avenue	Rochester	NY	14603	Danny Wegman	through website: http://www.wegmans.com/guest/index.asp	800-WEG-MANS x4760
Westsoy	Hain Celestial	58 South Service Road	Melville	NY	11747			
White Wave	Hain Celestial	58 South Service Road	Melville	NY	11747			
Whole Foods (365 Organic)	Whole Foods Market, Inc.	601 N. Lamar Suite 300	Austin	TX	78703	John Mackay, CEO		512-477-4455
Whole Soy & Co.	Whole Soy & Co.	353 Sacramento Street, Suite 1120	San Francisco	CA	94111	Ted Nordquist	nordquist@wholesoyco.com	415-434-3020
Wild Harvest	Supervalu	11840 Valley View Road	Eden Prairie	MN	55344	Jeffrey Noddle, CEO		
Wildwood	Wildwood Pulmuone	2315 Moore Ave	Fullerton	CA	92833			714-578-1467
Wise Markets	private label	1000 S. Second St. , PO Box 471	Sunbury	PA	17801	Norman S. Rich	feedback@weismarkets.com	(570) 286-4571
Worthington Loma Linda	Kellogg Company	1 Kellogg Square	Battle Creek	MI	49016-3599	David Mackay	kellogg@casupport.com	

Endnotes

1 In the report and scorecard, we focus on family farmers in North America, which includes the United States and Canada. Unlike soybeans from other international sources, such as China and Brazil, Canadian soybeans are grown under conditions that are very similar to those in the United States. For some companies, especially Canadian companies, Canadian soybeans are grown closer to home than are American-grown soybeans. When we use the term "domestic," it is usually in reference to soybean acreage or other statistics, and we are referring to the United States in these instances.

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Conclusion: "The results of most of the well conducted RCTS [randomized clinical trials] have not shown beneficial effects of LCPUFA [long chain polyunsaturated fatty acids, which means DHA and ARA] supplementation of formula milk on the physical, visual and neurodevelopmental outcomes of infants born at term."

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Also published by the Cornucopia Institute:

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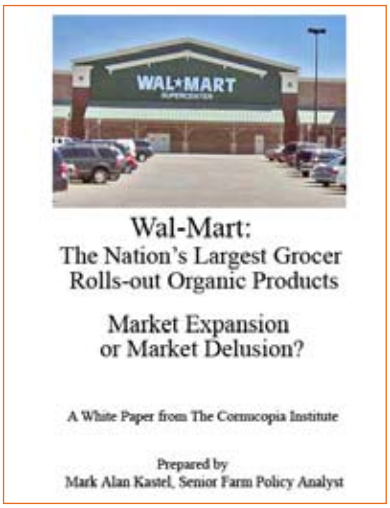

Walmart: The nation's largest grocer rolls-out organic products. Market expansion or market delusion?

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