GMO Contamination of Organic Foods

A look at the flaws of the USDA’s National Organic Program and the need for a new organic certification process to give consumers an informed choice about whether or not to consume GMOs.

Tag words: Non-GMO, USDA, Regulatory Process

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Summary
Lack of oversight and government regulation has resulted in many U.S. farmers with contamination from nearby farms growing Genetically Modified Organisms (GMOs). As of 2003 the amount of global land area planted for growing GMOs was 167 million acres and the U.S. comprised 63% of that figure occupying 105 million acres(1). Today with over 60 percent of the processed foods on the U.S. supermarket containing ingredients mostly derived from: alfalfa, canola, corn, cotton, flax, papaya, rice, soy, sugar beets, zucchini and yellow summer squash, containment becomes an ever increasing more challenging task especially for organic farmers. One such farmer tested his “organic” corn and found 6% contaminated with a GM strain. After detecting the contamination himself back in 2007, Albert Strauss, owner of the Strauss Creamery and five other natural food producers (including whole Foods) opted to voluntarily test their food and get on the band wagon of the Non-GMO project(2). The Non-GMO Project offers annual testing of the food before it’s processed at critical times along the supply chain. The projects mission brings transparency, reliability, and accountability to growers who want to grow non GMO crops and consumers who want to purchase them. The introduction of labeling a product Non-GMO adds a whole other element to what’s considered “organic” or certified organic. Many products on the market certified organic with a USDA stamp of approval have now come to be questioned whether or not they are compromised with ingredients derived from GMOs. For our service project we want to try and get more retailers on board with the non GMO project and bring awareness to consumers so that they can make a more informed choice. (HF)

(1) http://uwstudentweb.uwyo.edu/L/LPETER/Factsheet/20Genetically20Modified20Crops%20in%20the%20United%20States.htm
(2) http://www.time.com/time/health/article/0,8599,1599110,00.html

Video Link:
http://youtu.be/147o9f2F9bw
I. Introduction

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a. What is a GMO?

A GMO, or genetically modified organism, is an organism that’s had its DNA altered using biotechnology. GMOs can also be called GEOs, or genetically engineered organisms (3). The alterations to the organism’s genetic material are much more specific and selectable through practices of biotechnology as compared to traditional breeding and mutation. The engineering of GMOS relies on recombinant DNA techniques, in which DNA from one or more different sources is combined into a vector and then inserted into an organism’s DNA library. DNA molecules for recombination are selected based on the genes they encode, and the addition of this DNA into an organism’s genome allows for it to have a new set of genes with desirable phenotypes. Usually, genetic engineering is carried out to introduce a new set of traits that do not occur naturally in the species.

“GM Foods” refers to any product for human or animal consumption that contains genetically modified crops or animal products (3). They can be single-ingredient foods such as fruits and vegetables, or multi-ingredient products such as processed foods. The ingredients in these foods are usually modified to enhance traits such as taste, texture, growth rate, color, size, and drought resistance.

b. GMO’s - A Brief History

Following the principle that a genetically modified organism is produced by physically adding new DNA into an organism’s genome, the first GMO was produced in 1973 (4). The organism was a strain of *E. coli* that expressed a *Salmonella* gene. Following the creation of this genetically engineered bacterium, worldwide concern began to spread about the safety of genetic engineering and a push government regulation began. The first company using recombinant DNA technology, Genentech, was formed only 3 years later in 1976, and its first genetically engineered product was announced in 1978- a strain of *E. coli* that produced insulin (4).

In 1987, the first patent for genetically modified animal was issued to Harvard University researchers Timothy Stewart and Philip Leder (5). The animal was a mouse developed for use in cancer research. Following this event, a race for patents for GMO’s began. Since 1987, many more transgenic animals have been engineered, including pigs, sheep, and salmon.

In 1993, the Flavr Savr Tomato became the first genetically modified food product to enter commercial production (4). The tomato was engineered to delay its ripening, making it firmer and easier to transport around the globe without it losing freshness. The product was pulled off the market in 1997 for unknown reasons, but it put the biotech company, Calgene, on the map.

c. Methods of Genetic Engineering

There are many techniques used to genetically engineer plants and animals, although most are variations of three major methods: the use of plasmids, vectors, or biolistic technology (6).
The most common method of creating recombinant DNA is the plasmid method. In this technique, small rings of DNA called plasmids are isolated from bacteria, cut by restriction enzymes, and then attached to an isolated DNA sequence encoding a novel trait. The plasmids are then reintroduced to a culture of live bacteria, which take up some of the plasmids and express the DNA encoding the novel genes.

The vector method is very similar to the plasmid method, but it uses viral vectors to insert DNA directly into an organism’s genome. Before introducing the virus to the organism being modified, one must remove the segments of viral DNA that cause virulence and disease. The benefit of using a viral vector over a plasmid is that larger segments of DNA can be introduced to target organisms. However, the vector method is very unpredictable with DNA insertion, and has a lower yield.

The most commonly used technique for engineering plants, including GM crops, is the biolistic method. In this method, small pellets of metal are coated with novel DNA sequences that are to be inserted into target plants. The pellets are fired at plant cells, which take up the DNA, and are then reintroduced into developing seedlings. Although this method is effective for most plants, other techniques are being used with increased efficiency for different plant species. One such technique is electroporation. In this method, temporary holes are made in plant cell membranes using electric shock, therefore allowing the transport of recombinant DNA into the cells.

3. [http://biotech.about.com/od/faq/f/GMOs.htm](http://biotech.about.com/od/faq/f/GMOs.htm)

II. GMO’s: The Answer to World Hunger?

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a. Benefits of Genetic Engineering

As the world population approaches 7 billion people, maintaining an adequate and steady food supply for the world is becoming a daunting issue. Genetically modified foods and crops have the potential to ensure that there is a sufficient supply of food for the masses, as well as the potential to even help alleviate problems associated with unequal food distribution. The numerous benefits biotechnology has provided for food production are listed below:

- Cold resistance- One problem farmers constantly face is unexpected or abnormal weather throughout the season. With genetic engineering, an antifreeze gene was introduced into plants such as potato and strawberries, allowing them to tolerate cold temperatures that would normally kill off seedlings.
- Drought resistance- As space is becoming limited for food production, many farmers are settling down in areas where the climate isn’t suited for growing crops. Genetically engineering plants to withstand periods of drought has helped farmers grow in previously untouched lands.
- Pest Resistance- Insects and small animals are one of the biggest challenges faced by farmers when trying to produce higher yields of crops. The simple solution in the past
was to use an overabundance of pesticides to prevent pests from causing farmers financial losses. However, most consumers are against the use of pesticides due to the harm they cause the environment when seeped into water supplies, as well as the potential risk to human health. Growing GM crops such as Bt corn helps reduce, if not eliminate, the use of pesticides and their effects on the environment.

- **Herbicide resistance-** Tilling and other physical means of removing weeds from crops are very labor-intensive and time-consuming, so many farmers rely on the use of herbicides. Spraying herbicides on farms is an expensive task, and it runs the risk of harming the desired crops. Using genetically engineered crops that are resistant to herbicides eliminates the problems associated with using herbicides. One such example is Monsanto’s strain of soybeans that is resistant to their herbicide, Roundup. In addition to being resistant to the herbicide, farmers only need to use one application of the herbicide, which alleviates some of the damage cause to the environment.

- **Disease resistance-** Many crop plants have been genetically modified to resistance certain plant disease caused by viruses, bacteria, and fungi (7).

- **Increased nutrition-** Probably one of the most well known examples of GM foods is golden rice, a strain of rice developed under funding by the Rockefeller Foundation. The goal of golden rice was to develop a rice strain that had an increased level of vitamin A and iron, therefore being more nutritious than normal strains. The plan was to distribute golden rice seeds to third world countries for free in an aim to fight vitamin A deficiency in those areas. Since then, more strains of golden rice have been created. It is estimated that golden rice will enter the market by the year 2015 (8).

### b. Risks and Concerns: Why some people choose not to consume GMOs.

Although the Biotech industry insists that there is no reason for concern regarding genetically modified organisms, many opponents of GMO’s are concerned with their impact on the environment, the economy, and human health. Probably the biggest cause of concern is the effect GM crops have on other species of plants as well as animals that inhabit the nearby area where they are grown. One such potential risk is the transfer of genes to non-target species of plants through cross pollination. For example, the development of herbicide-resistant weeds could possibly occur from the cross-breeding of herbicide-resistant plants like Monsanto alfalfa, and the weeds growing nearby. The only way one can assure that no cross-breeding occurs is to only grow male sterile plants (3). That way, no pollen is produced and there is no possibility of cross-pollination. The idea of producing only male sterile GM crops has been suggested by many proponents of biotechnology.

Another potential risk with the farming of GM crops is the unintended harm to animals and insects that aren’t pests. Studies have been done to monitor the effects of Bt corn on insect species that were found in surrounding crops, namely Monarch butterfly caterpillars (3). The reports stated that insects in neighboring fields were showing higher mortality rates, due to consumption of Bt pollen that was carried there by wind. Because Bt toxins cannot be designed to be species-specific, many insect species are affected. A suggested solution to this possible problem is the implementation of a “buffering zone” around farms, in which non-GMO crops are grown around GM crops These non-GMO crops are not harvested for food, but rather are grown to act as a spacer between farms.
With regards to risks concerning human health, one of the biggest fears towards GM foods is the transfer of known allergens to new foods, or even the possibility of introducing new allergens to the playing field. However, with thorough and widespread testing of GM products, and new standards of food labeling, the concern of allergens in GM foods can be expelled.


III. Government Regulation

The EPA, USDA and FDA are each responsible for a certain aspect of the regulatory process concerning biotechnology among food crops. The EPA is responsible in the regulatory process under two laws, Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetics Act (FFDCA). The EPA is responsible for overseeing the pesticide or herbicide control aspects of a genetically engineered (GE) crops and whether it poses an environmental threat. Mind you the EPA doesn’t oversee see the herbicide resistant crops, only the herbicide itself. Pesticide ready crops are however under the regulation of the EPA. An example of EPAs responsibility would be in the case of a crop containing the BT (bacillus thuringiensis) resistance gene. BT is a bacterium transferred into crops for better pest resistance. One major concern with this is pests evolving and developing immunities to BT and in turn become tougher and tougher to control for farmers. There are also other environmental concerns, such as negatively impacting non targeted pests in the surrounding habitat. USDA's Animal and Plant Health Inspection Service (APHIS) is responsible for protecting American agriculture against pests and diseases. APHIS regulates the field testing of genetically engineered plants. APHIS is responsible for preventing cross pollination between compatible non-GE weeds; therefore, creating what people refers to as superweeds. For example, a gene escapes from a roundup ready canola by its pollen grain crossing with a closely related wild mustard plant recombining and incorporating the resistance gene. Now this wild mustard plant is also resistant to glyphosate, the main ingredient in Roundup, a process which has been known to occur. The USDA is not responsible for the food safety of GE plants only GE animals and its main concern with GE plants is that they don’t pose a threat to existing crops. Aside from preventing superweeds and superbugs these aforementioned agencies should be responsible for regulating and monitoring any contamination between GE crops and non-GE crops and holding biotech companies accountable that fail to meet their criteria. Finally the FDA assesses food safety and nutritional aspects of newly introduced plants for human consumption and approves them on its nonpesticidal components (e.g.BT gene or herbicide resistance). The FDA requires that GE crops meet the same standards required for non-GE crops. The FDA is also responsible for labeling protocols. Products containing ingredients derived from a GMO are not required to be labeled because FDA deems them as safe as conventionally grown crops for human consumption. The FDA sets tolerances on the EPA regarding the levels of pesticides or residues that can remain in the crop. With that being said the FDA sets criterions by which these biotech companies like Monsanto are to follow in order to get their crop marketed for human consumption. These scientific studies are done by people appointed through the biotech company and presented to a FDA panel. The FDA evaluates the data presented to them by say Monsanto and either writes them a letter of approval or not. My problem with this is that the FDA doesn’t conduct the study themselves, probably due to cost related issues.
“Specifically, companies were told that an evaluation to assure food safety may be required if one or more of the following subheadings apply to their product (Federal Register):

1. **Unexpected Effects** (produces unexpected genetic effects)
2. **Known Toxicants** (has significantly higher levels of toxicants than present in other edible varieties of the same species)
3. **Nutrients** (significantly alters levels of important nutrients)
4. **New Substances** (differs significantly in composition from such substances currently found in food)
5. **Allergenicity** (contains proteins that cause an allergic response)
6. **Antibiotic Resistance Selectable Markers** (contains marker genes that theoretically may reduce the therapeutic effects of clinically useful antibiotics)
7. **Plants Developed to Make Specialty Nonfood Substances** (plants developed to make substances like pharmaceuticals or polymers that will also be used for food)
8. **Issues Specific to Animal Feeds** (significant changes in nutrients or toxicants)"

(Taken directly from [http://www.biotech.iastate.edu/biotech_info_series/bio8.html](http://www.biotech.iastate.edu/biotech_info_series/bio8.html))

So with all of these different agencies each regulating a specific domain it allows certain crops to be planted by one agency even though it hasn’t been approved by another agency for other safety restraints. Obviously the cost of a biotech company going through the approval process of each agency is high and would rather be avoided.

(9)[http://usbiotechreg.nbii.gov/database_pub.html](http://usbiotechreg.nbii.gov/database_pub.html)
(10)[http://www.biotech.iastate.edu/biotech_info_series/bio8.html](http://www.biotech.iastate.edu/biotech_info_series/bio8.html)

### IV. Containment Concerns

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In the U.S. contamination of a crop branded Starlink, a variety of GE corn, was found in taco shells consumed by humans and caused uproar. The gene introduced into the corn gave it pesticide resistance. Starlink was approved to be planted after the pesticide was reviewed by the EPA and could not be ruled out that it wouldn’t pose a human threat as an allergen. However, EPA evaluated that this new gene or protein (Cry9C) generated would not pose any other threats on human consumption or the environment as a pesticide(11). The EPA in 1998 approved and registered Starlink for commercial use as long it was directed to domestic animal feed or industrial purposes (e.g.biofuels). The EPA’s intentions to direct the commercialized starlink to animal feed was to prevent a potential human allergen from contaminating our food supply. Their attempt proved to be a failure. To make a long story short the corn was planted and in the year 2000 traces of the corn were found in taco shells indicating contamination into the human food supply. This story poses a couple problems to me. The fact that the EPA alone could authorize commercialization of the potentially harmful crop without oversight from other agencies is worrisome. Also, the fact that no confinement protocols were put in place to prevent the gene from escaping is unsettling. Finally, the fact that the EPA or FDA didn’t see anything wrong by allowing the starlink to be given to animals which human’s would later indirectly consume. The FDA doesn’t examine the pesticidal components, and since starlink wasn’t intended for human consumption it was allowed to be planted. This is a great example of the loop holes between these agencies that needs to be amended. Another more recent example of
contamination was proclaimed in a statement by the FDA in August of 2006 of unapproved traces of GE rice, called LL601, in the food supply. Bayer crop science notified the FDA and USDA. The variety of rice that entered the food supply expressed proteins that made the grain crop resistant to herbicides\(^{(12)}\). These genes have been transferred into other crops (e.g. corn) in the past and deemed safe but it has never been approved by the government agencies in this specific rice plant. The GE rice mixes into commercial food without participating in FDAs voluntary biotechnology consultation process. Farmers had ongoing trials with the Bayer science company, due to the halting of trade to Europe. Europe is strongly against GMOs and after this outbreak most of the rice growers were suspect of contamination, causing serious economic problems. Loop holes in the FDA, USDA and EPA regulatory process have again become evident. USDA approves a crop to be planted without any noticeable threats to other crops, but without ever having been approved by the FDA for food consumption. In the meantime the gene can escape into rice unintentionally making it to the market for human consumption, which is what happened with LL601. However after being brought to the attention of the FDA and others it was evaluated and deemed safe. Nevertheless, this type of cross contamination should not happen and transparency between the biotech companies, government agencies and consumers needs to be amended. The aforementioned examples indicate to me that the system of corroboration between these agencies has failed and continues to have many loop holes that need to be addressed. The EPA approves the standards of pesticide use set by FDA; however, the FDA doesn’t approve the health safety requirements for the GE crop because it is considered no different a threat as a conventionally grown crop. The voluntarily regulatory process between the biotech companies and government agencies is preventing outcross and contamination with non-GE plant crops, which poses serious safety, economic and reliability concerns between farmers and consumers.

When contamination does occur more often than not these big corporations like Monsanto file lawsuits against nearby farmers whose crop crossed with theirs and contain the beneficial trait, like herbicide resistance. Due to patent laws many farmers have lost trials against biotech companies, in particular Monsanto. The farmers should be within their rights to sue Monsanto since their non-GE plant has been contaminated, but more often than not Monsanto and their big shot lawyers win the lawsuit. Percy Schmeiser has been one of the unwanted recipients of Monsanto’s roundup ready plants. Percy Schmeiser is a farmer located in Bruno Saskatchewan, Canada, and pursued one of the biggest trials against Monsanto, the media called titled it David vs. Goliath. In a youtube video Percy stated, “This is what a Judge ruled, if you are contaminated against your wishes by Monsanto’s GMO’s you no longer own your seed or plants they become the owner of a corporation, in this case Monsanto.” The Judge also ruled in favor of Monsanto and they were awarded all of Percy’s 1998 canola profit. Percy didn’t give up and took the fight all the way to the Supreme Court. Percy contested that he never used Monsanto’s patent because he never applied Monsanto’s herbicide Roundup. The Judge agreed that Percy didn’t have to pay a fine but he did in fact have to give up all the plants containing the resistance gene. Percy won half his battle. Not all farmers were as fortunate as Percy. How is all this relevant to the regulatory process? Companies are not held responsible when contamination in fact does occur; on the contrary they sue the farmers who were the recipients of the contamination. The current laws today regarding the registry and containment of GMOs lacks government oversight and accountability. Of course biotech companies are not going to go the extra mile and spend more money to insure their gene doesn’t escape and contaminate nearby fields because if it does there is no negative consequence. The planting, harvest, drying, storing and transportation of GMOs
need to be more regulated and monitored. I understand that it is difficult to contain GMOs, but there is more that could be done if the agencies and biotech companies made more of an effort and an investment. There are more preventative measures that could be taken, like creating larger buffer zones of 700 hundred feet or more, or insuring infertile offspring (some of these techniques are mentioned in our intro and history sections). These loopholes need to be addressed and amended so people who don’t want to consume GMOs at least still have a choice before it is too late. While many conventional and organic farmers are opposed to GMOs it still continues to spread in land acreage and doesn’t seem to stop any time soon. As of 2003 the amount of global land area planted for growing GMOs was 167 million acres and the U.S. comprised 63% of that figure occupying 105 million acres(1). Today with over 60 percent of the processed foods on the U.S. supermarket containing ingredients mostly derived from: alfalfa, canola, corn, cotton, flax, papaya, rice, soy, sugar beets, zucchini and yellow summer squash, containment becomes an ever increasing more challenging task especially for organic farmers. Because of a faulty regulatory process and poor containment issues more and more farmers are taking matters into their own hands and getting on board with the Non-GMO project.

(1)http://uwstudentweb.uwyo.edu/L/LPETER/Factsheet%20Genetically%20Modified%20Crops%20in%20the%20United%20States.htm
(11)http://www.epa.gov/oppbppd1/biopesticides/pips/starlink_corn.htm
(12)http://www.naturalnews.com/021203.html

V. GMO/ Organic Labeling

(a) Europe

The European Union has the most thorough and stringent legislation regarding the labeling and traceability of GM foods, which in turn allows for the monitoring of environmental and health effects at all levels of food production. According to the EU, guaranteed traceability of GM food products makes it easier for their withdrawal from the market if it is determined that they present any risk to the environment or human health (13).

The current legislation governing GMO labeling is Regulation 1830/2003, which was passed on April 18, 2004, and amended Directive 2001/18/EC. The European Union had two main objectives when passing Regulation 1830/2003:

- to protect the environment and the health of humans and animals in relation to genetically engineered food products by making them traceable
- to give consumers the opportunity to make informed decisions regarding the purchase of GM foods by requiring mandatory labeling

Under Regulation 1830/2003, all food products that contain or make use of GM ingredients at any point of their production are required to be labeled with the words “This Product Contains Genetically Modified Organisms”. Previous legislation required only that foods with a certain percentage of GM content be labeled. As the newer regulation is process-based, the final composition of the product when it enters the market does not matter (13). Even if there is no trace of GM content in the product when it hits the shelves, the fact that GMOs were directly used in its production makes it subject to labeling.
The European Union also requires that certain information be passed along to each party involved in a food’s production process. This allows for the use of any GMOs to be traced throughout the production chain and accurately labeled on the final product. The information required to be passed along includes an indication that the product contains GMOs, identification of all the GMOs used, and an indication of each ingredient that is produced from GMOs. This information is to be organized and kept for 5 years after the start of production.

Understanding the possibility of involuntary contamination of a food product from GMOs, the EU has set a .9% threshold for products with unintended traces of genetically modified organisms. This means that any food produced without the use of GM ingredients that has traces of GMOs above .9% of its composition is required to be labeled (14). Foods with traces of contamination below .9% are not required to be labeled as containing genetically engineered ingredients.


b. United States

Although mandatory labeling of GM foods has been proposed on numerous occasions, no legislation requiring labeling of all genetically engineered foods has been passed (15). Currently, the U.S. Food and Drug Administration requires only that GM foods with significantly different nutritional values from organic varieties be labeled, in addition to labels for allergens or toxins above acceptable limits.

As there is no mandatory labeling of GMOs in food products in the United States, customers who wish to avoid GM foods must rely on the labeling of organic products by the USDA-FDA. However, the USDA’s organic labeling system can be very misleading and most customers do not understand the meaning of their labels. In a survey we conducted on the Rutgers College Avenue Campus, 58 out of 75 students believed that food with the “Certified Organic” label contained no traces of GMOs or other contaminants. 8 students believed that there were some traces of GMOs in “Certified Organic” foods, and 9 were unsure. Contrary to the beliefs of most of these survey participants and the U.S. population, the USDA’s National Organic Program (NOP) does not guarantee that organic foods are free of any GMO traces. In fact, the “Organic” label does not necessarily guarantee the absence of “prohibited substances” that are deemed inorganic.


VI. The USDA’s NOP, and the shift of farmers to the Non-GMO Project (PK)

The National Organic Program was formed after Congress passed the Organic Foods Production Act (OFPA) in 1990. Currently, the NOP oversees the regulation of three different labels with the USDA Organic Seal: “100% Organic”, “Certified Organic”, and “Made with Organic Ingredients”. Like the European Union’s regulations regarding labeling of GM foods,
the USDA’s NOP is a process-based program. Therefore, organic production and handling operations must comply with rules that prohibit the use of pesticides, antibiotics, hormones, or biotech materials. However, unlike the EU’s legislation on GMO labeling, the NOP has not set a threshold on the acceptable amount of unintended GMO contamination found in organic products.

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Because of a faulty regulatory process and poor containment issues more and more farmers are taking matters into their own hands. After detecting the contamination himself back in 2007, Albert Strauss, owner of the Strauss Creamery and five other natural food producers (including whole Foods), opted to voluntarily test his food and get on the band wagon of the Non-GMO project. Since the FDA deems GMOs as safe as conventionally grown crops they don’t require products GE to be labeled. So ingredients derived from conventional farmers not using GMOs can be incorporated into processed foods containing ingredients that were derived from a GMO, in the U.S.

Organic farmers have another obstacle when it comes to certifying their product is in fact “organic”. What is considered organic? Organic foods must be grown in safe soil without the use of synthetic pesticides; petroleum based fertilizers, sewage sludge-based fertilizers and bioengineered genes (GMOs). A product with the USDA seal of approval has to contain 95% organically derived ingredients, which means 5% of the ingredients could in fact be derived from a GMO. Also due to the faulty regulatory process and containment practices more often than not certified organic products actually contain more than five percent. This is where the Non-GMO project has precedence. The Non-GMO Project offers annual testing of the food before it’s processed at critical times along the supply chain. The projects mission brings transparency, reliability, and accountability to growers who want to grow non GMO crops and consumers who want to purchase them. Food products undergo vigorous testing and products are deemed Non GMO when they prove to contain .9% or less. The threshold is .9 percent because that is limit scientists can accurately test for. So a non GMO product actually is 100% “organic”, with a possible .9% contamination. A product receives its Non-GMO seal (or label) after it successfully goes through the required verification process. The verification process consists of the five following criteria:

- “We require ongoing testing of all at-risk ingredients—any ingredient being grown commercially in GMO form must be tested prior to use in a verified product.
- We use an Action Threshold of 0.9%. This is in alignment with laws in the European Union, where any product containing more than 0.9% GMO must be labeled.
- After the test, we require rigorous traceability and segregation practices to be followed in order to ensure ingredient integrity through to the finished product.
- For low-risk ingredients, we conduct a thorough review of ingredient specification sheets to determine absence of GMO risk.
- Verification is maintained through an annual audit, along with onsite inspections for high-risk products.”

(Directly from (17) http://www.nongmoproject.org/learn-more)

Refer to our labeling and service project sections for more detail on Non GMO and organic.
VII. Final Thoughts

GMOs have already taken a foothold in our world. Scientists believe in order to meet the need of satisfying our growing population with food and sufficient nutrients GE technology is necessary. The risk and safety concerns we face today are well worth the reward if we are able to sustain 12 billion people in 50 years. The trouble is the long term effect of GE technology is not yet known, and humans and this planet have become an experiment. I think taking calculated risks is necessary and important for human progress and I just advocate that we move with caution and transparency. As mentioned in our opening paragraphs 60% of the food supply consists of some type of GMO. People who just want this to go away I believe are very hopeful or naïve. GMOs are here to stay. The question is how we incorporate this technology in an ethical and safe manner into the environment and our own personal health. Monitoring which organisms have been GE and approved for commercial use is available at the respectable government agencies, such as the USDA online database. However, following these crops to the market and trying to account which processed food possess a GE aspect is very difficult if not impossible especially because so many foods already possess them. Also, there must be more government oversight and accountability of these biotech companies contaminating other farmers. Another major concern is the policies currently in place regarding the FDA, USDA and EPA approving crops for commercialization, which leads to contamination between conventional or organic farmers and eventually into the American supermarkets for uninformed consumers to purchase. As for those natural food producers who can no longer wait for the government’s regulatory process to be amended they are taking matters into their own hands and joining the non-profit organization called the Non-GMO Project to prevent contamination. So those consumers out there who don’t want to consume GM foods this project offers transparency and allows you to make a more informed choice. We shouldn’t be afraid but we should be aware of what we are consuming.

VIII. Service Project

The main goal of our service project was to spread awareness of the Non-GMO Project and promote informed choice about the consumption of genetically modified organisms. We wanted to show consumers that there was an alternative to USDA-labeled organic foods that offered consistent non-GMO choice for natural products.

Originally, we intended on getting in touch with the promotions divisions of various regional supermarket chains in an attempt to have them include Non-GMO verified products in their advertising and promotions. The target supermarket chains were ShopRite, Pathmark, Stop & Shop, Acme, and A&P. We hoped to have at least one of these supermarkets devote a section of either their store displays or weekly circulars to Non-GMO verified products. This proved to be a daunting task as we were not able to get in contact with anyone that had leverage over such retail operations. We visited a few of these supermarkets and spoke to their managers, hoping to have them direct us in the right path. We learned that our idea was highly unlikely to occur as it
offered no particular gain to the supermarkets. After numerous phone calls, we found that our
request was just being redirected to the next representative and not actually reaching corporate.

We decided to take a more local approach to the idea. We identified and visited local natural
foods stores that were not listed on the Non-GMO Project’s Supporting Retailer Program
website. Finding that most of these stores already sold Non-GMO verified products, we asked
their managers and owners for permission to post Non-GMO Project posters and flyers in their
window displays. The retailers included The Taste of Dawn in Butler, N.J., Nature’s Pavilion in
Pompton Plains and Kingston, NJ, the George Street Co-op in New Brunswick, N.J., and the
Glenwild Gardencenter in Bloomingdale N.J. As these stores already supported the notion
behind the Non-GMO Project, they gladly agreed to our request. In addition to having these
stores visibly promote the Non-GMO Project, we also asked them to complete and submit an
endorsement and support application via the project’s website (http://www.nongmoproject.org/
take-action/retailers/endorsement-and-support-sign-up/). By completing this, their stores will be
added to the Non-GMO Project’s searchable database of endorsers which is available for the
public to see.

The final portion of our service project involved spreading awareness of the potential of
GMO contamination in USDA-certified organic food products. Already having submitted
targeted magazines, we wanted to find a channel through which we could reach
students at Rutgers University. We found that channel through the Rutgers R.I.P.E. Club, a
student organization advocating permaculture. Although they do not currently have an available
newsletter, we were able to submit our letters to be posted on their Facebook page. At times,
social media can be a more effective means of spreading information than traditional print
media.

IX. Editorials

Herbert Farnese

Sent to Targum (Nov.15, 2011)

Certified organic or not? People have a right to know for sure if the food they are purchasing
is in some way shape or form derived from a genetically modified organism (GMO) and make a
more informed choice. Certified organic is the label found on most organic foods in the
supermarkets today. What does this mean exactly? Organic foods must be grown in safe soil
without the use of synthetic pesticides; petroleum based fertilizers, sewage sludge-based
fertilizers and bioengineered genes (GMOs). Foods that contain 95% organic ingredients may
display the USDA seal, certifying it organic. This leaves 5% of the ingredients that could
possibly have been derived from a GMO. An example of a popular ingredient derived from a
GM crop would be high fructose corn syrup, derived from GM corn, which is found in many
foods in the supermarket. The National Organic Program (NOP) does try to exclude GMOs from
their products but due to a faulty regulatory process and contamination problems organic
products are found to contain GMOs. Not all of the certified organic products contain GMOs of
course. How can the market give consumers a more informed and reliable choice?

One of the major obstacles facing farmers is containment issues. Three major
governmental branches oversee the registry and process of GM foods into the market. The EPA,
USDA and the FDA all play a major role in this process. In the past there have been instances where these agencies failed to contain GM crops that they granted permission to be planted. One major incident that originally captured interest from media and concerned consumers was the contamination from starlink (corn). Starlink is the brand name of a GM corn produced by Aventis Agroscience, Inc and given permission to be planted from the EPA for animal feed only. A certain GM component in Starlink posed a threat to humans as a possible allergen, and so was not permitted for human consumption. Sure enough a few years after its release in 2000 this corn was found to be the ingredients of a taco shell sold in the US. FDA had to do a major recall costing millions of dollars and giving people a major scare. Although nobody was ever ill affected from the contamination it brought awareness to the major loop holes between the aforementioned agencies. Today with over 60 percent of the corn, soybeans and canola being GM containment issues pose an even greater threat than before. While the regulatory process is faulty and needs to be amended many organic farmers and manufactures can’t wait and are taking the issue into their own hands. After detecting contamination himself back in 2007 Albert Straus, owner of the Straus Family Creamery and five other natural food producers (including Whole Foods) has opted to voluntarily test their food through the non-profit organization called the Non-GMO Project.

The Non-GMO project offers a third party testing these foods at critical times along the supply chain. These tests are done annually on top of the restrictions the government agencies already have in place to prevent contamination. If you go to the nongmoproject.org you can check out all their standards and products that have been verified and approved not to contain ingredients derived from GMO in accordance with their threshold. This extra oversight and testing throughout the supply chain is needed to insure customers that what they are buying is in fact organic. The transparency that the project offers is very informative and educating to consumers. We tried to get other supermarkets like ShopRite, A & P and Stop and Shop on board as a supportive retailer but I failed to do so. We were however able to get natural food stores on board with the non GMO project and bring awareness to this issue. So remember if you don’t like GM foods there is a safer alternative. Next time you’re shopping look for the Non-GMO seal or check their website for a list of products that are already verified to be Non-GMO.

(PK)

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It has recently come to my attention that the majority of Americans has little to no knowledge about the regulation and labeling of organic food products. A common misconception is that any product that is “certified organic” by the USDA contains no trace of genetically altered ingredients. This, in fact, is not the case.

The USDA “Certified Organic” label can be misleading. One would think that a product regulated and labeled organic by the FDA-USDA would contain all organic ingredients, and that no GMO traces would be found. However, with over 50% of U.S. crops being grown from transgenic seeds, and no guaranteed methods of preventing cross-contamination of organic crops, it is almost impossible to detect all GMO traces in organic foods. With this being said, there are most likely GMOs in the organic products you are purchasing from the supermarket.
The USDA’s NOP (National Organic Program) is a process-based regulatory system. Therefore, as long as farmers and industries follow the NOP’s protocol for growing organic crops and producing organic foods, they can sell their products under the “Organic” label. Testing is only done when the USDA has reason to believe that the food in question has come in contact with “prohibited substances” such as contamination from GM crops, which is highly unpredictable. And even if testing occurs and traces of GMOs are found, that does not mean the product cannot be sold as “Organic”.

“In the case of residue testing and the detection of prohibited substances in or on agricultural products to be sold, labeled, or represented as “100 percent organic,” “organic,” or “made with...,” products with detectable residues of prohibited substances that exceed 5 percent of the EPA tolerance for the specific residue or UREC cannot be sold or labeled as organically produced.”

(Directly from the USDA NOP website)

So there you have it. Just because a food product is labeled “Organic” doesn’t mean that it is 100% organic. Due to limitations in testing procedures and technologies, as well as limitations in regulatory processes, it is impossible to determine whether a food is completely GMO-free.

References:


