The Opposition to Genetically Engineered Agriculture: A Social Movement in Vermont

An Interdisciplinary Qualifying Project Report:

Submitted to the Faculty

Of the

WORCESTER POLYTECHNIC INSTITUTE

In partial fulfilment of the requirements for the

Degree of Bachelor of Science

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Approved: April 27, 2006

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1) Genetic Engineering
2) Social Movement

ABSTRACT

We investigated the progression and status of the social movement against genetically engineered agriculture in Vermont. Stakeholder mobilization theory and social movement theory contributed to our understanding of the key players (government, biotech corporations and anti-genetically engineering activist groups) in this movement. We found that establishing a cooperative agenda among the activist groups to promote legislation – which would make corporations liable for unwanted contamination - would be important in protecting the natural and organic agriculture in Vermont.

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TERMS

GE……...Genetically Engineered

GM……..Genetically Modified

GMOs…..Genetically Modified Organisms

I. Introduction

The use of biotechnology in agriculture has burgeoned within recent years: although this technology was only introduced in 1996, 68% percent of soybeans and 26% percent of corn grown within the United States were genetically engineered in 2001. Biotechnology is not confined to the United States. Currently, around 46% of the entire worldwide soy crop is genetically engineered (Pew, 2004). In 2002, 58.7 million hectares of GE crops were grown worldwide with two thirds grown in the United States. Monsanto now owns 91% of the world's commercially grown GM seed and 70% of these crops are herbicide resistant (Abel 2004).

Genetic engineering refers to the modification of the genetic make-up within a cell. In agricultural genetic engineering, a scientist can identify and separate a desirable gene from one type of plant or bacterium and insert it into another. This technology allows certain crops to be modified to tolerate herbicides and resist pests. Monsanto, the leading agricultural-biotechnological corporation located in St. Louis, Missouri, uses this technology to create crops such as corn which can resist destructive corn-borer and rootworm pests, and soybean that can stand up to the application of Monsanto's own herbicide, Roundup (Melcer 2005).

Two major goals of this new biotechnology are to increase revenues and crop yields. According to a Monsanto spokesperson, a report from the National Center for Food and Agricultural Policy in the United States claims that the six major transgenic crops, canola, corn, cotton, papaya, soybean and squash, have increased grower incomes by $1.9 billion, boosted crop yields by 2.3 billion kilograms and reduced pesticide use by 20.8 million kilograms in the United States in 2003 (O'Neill 2004).

In the United States, many of these new products were accepted without much resistance. The first development of a genetically modified organism occurred in 1983 when strawberries were genetically engineered to prevent frost damage (MacKenzie 2000). However, it was not until the mid 1990's when Monsanto became the first company to commercialize genetically modified products. The "Flavr Savr" tomato, the first genetically engineered food, made it to the shelves in May of 1994 after the Food and Drug Administration ruled it as "substantially equivalent" to other conventional products (Teitel, 1999). Soon following in 1995, the Environmental Protection Agency approved the first pest-resistant plant, Monsanto's new leaf potato product.

Even though biotechnological companies were heavily invested in genetic engineering, studies investigating the safety of GE-foods heightened public skepticism towards GMOs. Although the use of biotechnology in agriculture allows for increased crop yields, there are a number of concerns regarding the safety of genetically engineered food. Previous research has found that GE food may catalyze the evolution of super-resistant weeds, pests and also carry immunogenic properties (Pew 2004). Reports by the National Academy of Science, Environmental Protection Agency, Union of Concerned Scientists and the Center for Food Safety raised concerns about extensive crop contamination, increased pest resistance, increased herbicide use, and impacts on non-target populations of insects. Additionally, serious gaps have been identified in testing methodologies and the regulatory approval process as well as a lack of oversight once products are commercialized ("Investors Challenge Monsanto", 2006). Moreover, the long-term effects of genetically engineered food on the environment and consumers of GE food remain uncertain.

I. Introduction

While the initial debate over genetically modified food was led by key stakeholders such as organic farmers and industry leaders, the public has become increasingly involved. Over the recent years, the debate over GE food has become highly controversial as both the activists and the consumer reactions have become visibly amplified. Beginning in the early 1990's consumers and environmentalists in Europe as well as the United States protested the introduction of genetically engineered foods to the market (Ruiz-Marrero 2003).

The successes of the anti-biotechnology movement are more pronounced in the European Union. Activists in all fifteen nations of the European Union caused the EU agricultural ministers to require food labels for GE soybeans and corn on May 26, 1998 (Hart, 2002). Currently in Europe, even foods with the minimal percentage of GM ingredients have to be labeled. In contrast, the U.S. enforces no mandatory food labeling laws for GE products; GE and conventional crops are mixed together, making it impossible for consumers to know what they are eating (Pollack 2006).

Different from the EU's centralized action to GE foods, the anti-biotechnology movement in the United States has been stimulated by grassroots movements (Tokar 2003). There are a few regions in the United States where action has been taken against GE foods. For example, in Vermont, seventy-five municipalities have voted to label GE seed and imposed a moratorium on GE crops (Tokar 2003). However, while several states such as Vermont, Maine and California are employing strict and cautious efforts against this biotechnology; other states such as Pennsylvania, Iowa, Georgia, North Dakota and South Dakota have adopted legislation in November 2004 that prevents local government from banning GM crops (Lambrecht 2005).

The clear difference in the responses of the European Union and the United States towards genetically engineered food is notable. Certainly the scientific

uncertainties shrouding the use of biotechnology in agriculture are universal. However, the different attitudes towards biotechnology in agriculture are reflective of demographic history, traditions and mentalities (Richardson 2000).

In this project, we will investigate how social movements against biotechnology have arisen in areas of American society. Specifically, we will focus on the battle against corporate biotechnology and GE-foods in Vermont.

Dating back to the 1980s, an anti-GE grassroots movement has flourished in this liberal and progressive state (Setchell 2005). Specifically, Vermont's opposition to GE began in 1985 when many dairy farmers in Vermont became concerned that the release of a GE-growth hormone for dairy cows would be damaging to Vermont's small farm economy. Patterns of negativity toward this invading technology resulted in the formation of anti-GE policies within organizations including Rural Vermont, the Institute for Social Ecology, the Vermont Progressive Party and the Northeast Organic Farmers Association. Our rationale for focusing on Vermont is that this state has one of the strongest "GE-free" grassroots movements in the nation.

We investigated the development, progression and status of this social movement against genetically engineered foods in Vermont. We intended to understand the public reaction to a new controversial biotechnology in a progressive region of the country. Only 30% of Americans think they have ingested genetically modified food when virtually, we all have (Brown 2005). We questioned whether the people of Vermont were any different in their knowledge and feelings towards GE foods,

We used stakeholder theory to gain understanding of the key parties, contributing powers and degree of influence/control these parties have on the subject. In addition, we investigated the factors leading to group formation and action. We set

out to understand the scope of this anti-GE movement in Vermont and see how it related to social movement theory. We have researched whether the Vermont GE-free movement could be considered a social movement. In addition, we investigated what the goals and strategies of the stakeholder groups that we identified are. Academic and empirical support was utilized in identifying the characteristics of the GE-free movement in Vermont. The results of our research based in Vermont helped further our understanding of this anti-biotechnology movement in the United States.

II. Literature Review and Background

II.1 Genetic Engineering

Genetic engineering is the manipulation of genes so that a particular trait can be changed. Genetic engineering is a process which usually involves the insertion of a gene from one organism into another organism of a different species with the intention of the foreign gene expressing a desired trait in the modified genome of the affected organism.

Genes are the functional units of an organism's DNA (deoxyribose nucleic acid) which contains all of its genetic and hereditary information. An organism's total DNA is known as its genome. DNA subunits known as nucleotides are made up of one deoxyribose sugar, a phosphate group and one of the four nitrogen bases; adenine, thymine, cytosine or guanine. DNA exists as a coiled double helix with two DNA chains facing each other. These chains are connected by hydrogen bonds between complementary pairing of nitrogen bases. Adenine only bonds with thymine and cytosine only bonds with guanine. A picture of DNA helps clarify its structure:

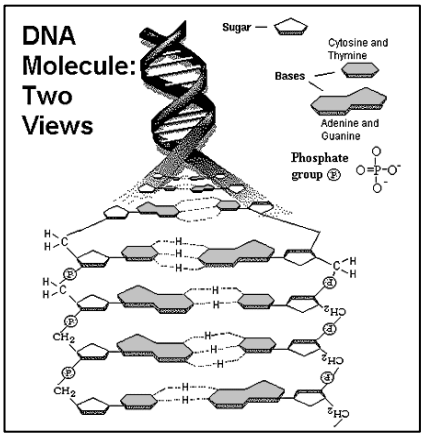


Figure 1: The structure of the DNA double helix

The sequence of these bases makes up a genetic code and the order is very important in directing the synthesis of specific enzymes and proteins necessary for

life. Amino acids are the building blocks of proteins and enzymes. After many studies with gene sequences, it was found that three bases in the right order will code for the corresponding amino acids (these are known are triplet codons). Since the sequences of these nucleotide bases have specific functions, the altering of a single base will change the message of instruction for producing specific molecules and functions, severely affecting the organism.

The genetic code is known as a “universal language” since it is shared by all life forms. For example, human DNA has the same composition and makeup of a plant’s DNA. Since genetic engineering mostly involves transgenics in which a gene from one organism is incorporated into the DNA of an organism of a different species, the fact that the genetic code is universal is what makes this new biotechnology possible (Nottingham 2003).

The flow of genetic information is mostly unidirectional. Genetic information flows from DNA to messenger RNA (mRNA) to transfer RNA (tRNA) which ultimately results in the arrangement of amino acids to synthesize proteins. Transcription involves the transfer of information beginning with the conversion of the DNA message into the mRNA sequence. In order for DNA to be transcribed, it unwinds itself out of the double helix so that mRNA can base pair with it and pick up the message. The only exception is that RNA has the nitrogenous base uracil instead of thymine. This mRNA is a much smaller molecule and carries the genetic code of one gene, transcribed from the DNA, out of the nucleus to structures known as ribosomes. These ribosomes are the sites of protein synthesis. Once the mRNAs reach the ribosomes, translation can occur. The tRNA molecules translate the amino acid (protein building block) chains and eventually a specific protein is synthesized (Nottingham, 2003).

The processes of genetic engineering involve the interruption of these innate steps so that a new gene can be transcribed and thus a new protein can be expressed. The purpose of transgenics is to be able to insert a foreign gene into another organism's genome so that the new gene will override the original gene in the organism. As a result, new and different characteristics may develop. Several engineering techniques were developed in order to make this ideal possible.

II.2 Techniques of Genetic Engineering

Now that a basic description of DNA and genomic functions has been described, we can look at several approaches to genetic engineering which alter these innate processes. The oldest and still most commonly used practice of transgenics is direct DNA uptake. In this process cell walls are broken down creating pores or holes in the cell membrane to allow entry of the new genes. Recent techniques include electroporation and sonication, in which electric shocks and sound waves are used, respectively, to puncture holes in cell membranes to introduce foreign DNA. Also, bathing cells in solutions of special enzymes can create pores in the membrane in a process specifically known as chemical poration (Scientists August 10, 2005).

Other recombinant DNA techniques use biological vectors such as viruses and plasmids to carry foreign genes into cells. Different types of vectors have varying capacities to carry DNA material. However, the small size of plasmids allows it to enter the cells more easily and more frequently (Miller 2004).

Viruses have many favorable characteristics which make them candidate vectors for transferring genes to crop plants. Viral genomic information is easily spread to all cells of a plant upon infection. Specifically, viruses that attack bacteria known as bacteriophages are commonly used to transfer genes into plants. The virus can also be disabled so that while it can carry a new gene into a cell, it cannot redirect

the cell's genetic machines to make thousands of copies of itself. Furthermore, genetic engineers have exploited the viral vector's ability to produce promoter genes. These genes produce high levels of foreign gene expression in order to help promote the expression of foreign genes of other organisms (Nottingham, 2003).

Plasmids are another form of vectors which assist in the transport of genetic material. They are small circular pieces of genetic material found in bacteria that have the ability to cross species boundaries. The circles can be broken and new genetic material can be added to them. Plasmids augmented with new genetic material can move across microbial cell boundaries and place the new genetic material next to the bacterium's own genes. Often the bacteria will take up the gene and begin to produce the protein for which the gene codes (Scientists August 10, 2005). The figure below illustrates the process; restriction enzymes are used to nick an opening in the plasmid in which broken pieces of foreign DNA are incorporated into the circular plasmid and are ready to be transported into the new organism.

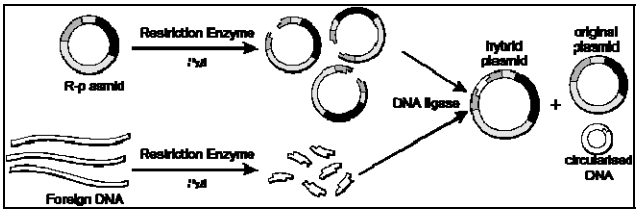


Figure 2: The Simplified Process of Plasmid Transgenics (Miller 2004)

Physical methods such as gene guns and microinjection evolved in the 1980s. Several variations in gene guns were developed. One included Agracetus Company's "Accell" method which used particle acceleration by electrical discharge to propel DNA-coated gold particles into plant material. In 1988, in collaboration with Monsanto, Agracetus was the first company to transfer foreign genes into soybeans. This resulted in Monsanto's popular Roundup Ready herbicide resistant soybeans (Nottingham 2003).

Microinjection is another physical process which involves injecting genetic material containing the new gene into the recipient cell. In large enough cells, the injection can be done with a fine-tipped glass needle. Somehow the injected genes find the host cell genes and incorporate themselves among them (Scientists August 10, 2005).

Gene silencing involves a methodology which inhibits a particular gene expression. It involves the regulation/suppression of genes by either preventing mRNA from being formed or disabling it before it arrives at the ribosome, the site of protein synthesis. Gene silencing was first commercially used on tomatoes. It ceased the function of the enzyme involved in the ripening process with the hopes of creating tomatoes with a more solid content and a much longer shelf life (Nottingham, 2003).

Cell culture techniques allow for the study of cells outside of the organism. This allows scientists more freedom to manipulate and experiment with gene transfers. This also provides the opportunity to regenerate many copies of the altered genes. Two cell culture practices are plant tissue culture and cell fusion techniques (College of Agricultural).

II.3 History of Genetic Engineering

Research on genetically modified bacteria first took place in Mol, Belgium, 1966. Located in the Antwerp province of Belgium, Mol was unusually situated near three nuclear reactors. Consequently, Mol developed into a center for radioactive research with a focus on plant genetics.

Dr. Maurice Stroun of Geneva University focused on plant genetics and published several studies on the topics of foreign uptake of DNA, metabolic DNA and transcession (Lurquin 2001). In 1966, Dr. Stroun and a team of his researchers determined that bacterial DNA could be translocated to plant organs in both tomatoes

and barley (Lurquin 2001). This development was one of the original examples of genetic modifications in the world. Stroun's team also made a discovery in 1967 which proved that the replication of DNA, with an intermediate density between the bacteria's DNA as well as with a plant's DNA, would replicate at much higher levels than the original plant's DNA.

Great strides in genetic modifications were made between the mid 1960's and the early 1970's. For example, in 1974 another scientist by the name of Ledoux attempted to modify seeds so that they did not need thiamin to survive. (Thiamin is a B vitamin that contains vital nutritional requirements for survival.) Of the seeds that underwent this genetic manipulation, 0.7% were successfully altered such that they did not need thiamine to survive. (Especially for this time period, 0.7% was a relatively high turnout.). Soon following, the Monsanto Company sent a scientist, Harold Weingarten, to Mol, Belgium to study genetically modified plants. Weingarten in turn requested some of the thiamine-less, mutant-corrected seeds. Working in conjunction with the University of Missouri, Monsanto tried to repeat Ledoux's results in the United States but could not reproduce them. In 1976, the Biological Research Center of the Hungarian Academy of Sciences organized a United Nations Educational, Scientific and Cultural Organization sponsored summer course on plant cell genetics. At this event, a scientific expert named G.P. Rédei refuted Ledoux's studies saying that there had been mechanical contamination of the seeds. Therefore, it became questionable as to whether or not these changes were caused by genetic manipulation. Although Ledoux's initial study was influential and instrumental in the field, in the next few years it was proven to be false.

Over the next few years, studies on genetic engineering focused on the organism, *Agrobacterium*. *Agrobacterium* is a bacterium that is crucial in the development of Crown Gall Disease. Crown Gall Disease creates tumors in plants when this bacterial DNA infiltrates the plant's genome. The diagram below illustrates how the tumors induced by Crown Gall Disease affect plants:

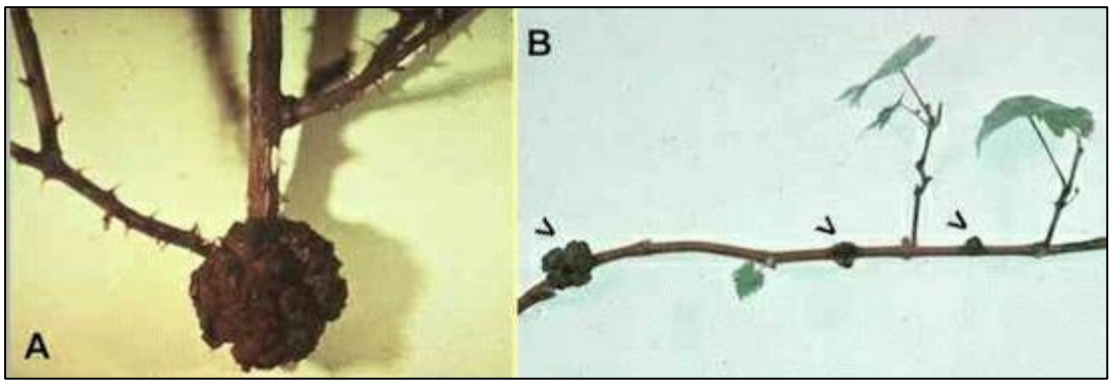


Figure 3: The tumors formed on plants infected with Crown Gall Disease (Deacon)

The study of this bacterium was very important in the modification of the genetic structure of a plant. The ability of the *agrobacterium's* DNA to be incorporated into the plant's genome suggested that bacterial infection could possibly be a method to integrate new genes into a host's genome. The idea that foreign genes could possibly be introduced into plant cells was a breakthrough in genetic engineering.

The first group of plants with foreign genes integrated into their genomes was synthesized in 1983. These new plants no longer had the Crown Gall tumors because the DNA had been modified so it no longer contained the gene that would allow for tumors to be created. This was a huge breakthrough in not only the elimination of Crown Gall disease but also the ability to insert foreign genes into a genome. In the following year, Monsanto produced plants that were resistant to the bacteria, kanamycin (Lurquin 2001). The production of these plants by Monsanto used the

"piggybacking" process in order to modify the genome of the plants so that this bacterium (kanamycin) would not affect them. These plants had a foreign gene that was also inheritable and would completely change the evolution of the genetic pool.

II.4 Applications of Biotechnology

After numerous breakthroughs in the early 1980's, genetically engineered products were beginning to be developed. The first mainstream genetically engineered product was Genentech's Humulin (Lurquin 2001). Genentech created humulin in 1982 at the City of Hope Hospital in Los Angeles, CA. Proven to be beneficial to diabetes patients, humulin is a type of human insulin created by bacteria.

The first FDA approved product, the Flavr Savr tomato, was put on the shelves in May of 1994 (Teitel 1999). This product was a commercial flop because of the labelling done by Calgene. All of the tomatoes sold on the market were labelled saying that they were genetically engineered. Consumers were very wary of buying a product that was genetically modified. Although able to grow in small batches, when Calgene tried to grow the Flavr Savr in large scale quantities, they ran into production problems. The tomato grew amazing in the laboratory but not quite as well in the fields. The tomato was created to fight some of the common problems with shipping traditional tomatoes. However, the Flavr Savr ended up getting bruised during shipping and spoiling quicker than originally expected therefore canceling out the main benefits of the product.

In the United Kingdom, a similar but much more successfully engineered tomato was sold. Zeneca developed a tomato that had similar properties as the Flavr Savr (tomatoes). This was, however, pulled from the shelves in the late 1990's when legislation threatened to completely ban GE made tomatoes and tomato paste. The referendum failed at the ballots but it still shed a harsh light on these foods.

In 1995, the Environmental Protection Agency (EPA) approved the first pesticide resistant plant despite the fact that the EPA does not usually regulate food products. However, because the New Leaf Potato product, developed by Monsanto, contained pesticides within the plant, the EPA was the governing body. At this time, many different products were in the field testing stage to determine if they would be safe for commercial production. As of 1994, there were eighteen different genetically modified foods that were being field tested. These included products like tobacco, cotton, corn and soybeans.

In addition to selling herbicide, Monsanto engineered plants which were resistant to their herbicide. By doing this the Monsanto Company took control of both sides of the market. They would sell the seeds for their Roundup Ready plants as well as the Roundup herbicide to be used on the plant. Currently, Monsanto requires customers to sign a contract when they buy their seeds saying they will use only Monsanto Seeds and herbicide.

II.5 Monsanto's GE Products

Monsanto is currently the leading biotechnology manufacturer in not only the country, but around the world. Unlike the notorious repute given by the anti-GE activists, Monsanto believes they use "unparalleled innovation in plant biotechnology, genomics and breeding to improve productivity and to reduce the costs of farming" ("Opening the Door to New Possibilities", 2006). Monsanto's leading products can be classified into three main categories; seeds, traits and roundup herbicides. Popularly known for their advances in biotechnology, Monsanto has developed the ability to integrate traits controlling insect control and weed management into the seed itself. In addition, herbicides are specifically designed to interact with those seeds to offer

farmers agricultural solutions (“Monsanto at a Glance”, 2006). The following table provides a summary for each of Monsanto’s leading products.

Table 1: Monsanto's Leading Products

Company Product	Description	Future
Seeds	Has the most biotechnology products in the three major crop markets: corn, cotton and oilseeds.	Advanced methods in plant breeding cause strong yield gains in seeds. Intends to license germplasm and traits to other seed companies.
Traits	Traits help farmers reduce their tillage and their pesticide use.” (“Monsanto at a Glance”, 2006).	Change plant genomes with the hopes in producing healthier foods which will benefit consumers.
Roundup Herbicide	Weed management system.	Maintain leadership and eliminate competition by continually developing improved formulations of the herbicide.

(“Monsanto at a Glance”, 2006)

II.6 Safety Summaries of Monsanto Biotech Products

According to Monsanto, biotech crops in the U.S. must undergo a rigorous program of safety assessments which may range from thirty to forty studies. The types of studies usually depend on the crop and its intended use.

Monsanto emphasizes one of its practices of “transparency” in which it pledges to make scientific and safety information available and accessible. “It is our intent to ensure that Monsanto's activities, policies, data (where possible), as well as the processes we undertake in making major business decisions, are shared in an open manner that is judged to be clear and accessible” (“Product Info & Safety Summaries”, 2006).

According to Monsanto, most of the safety studies on Monsanto’s products have been published in scientific journals and is made readily accessible on the internet. Product Safety Summaries, which provide reviews of the food, feed and environmental safety assessments conducted on Monsanto’s commercialized biotech

products, are available on the Monsanto Web site. These safety assessments and peer reviewed publications were further organized into a table. Furthermore, information on molecular characterizations, food and feed safety assessments, compositional analysis, nutritional assessments, and environmental safety assessments are provided.

II.7 The Future of Monsanto

According to Monsanto, the company continues to invest time and money into future technological advancements to help better agriculture. This multi-million dollar corporation has the means to not only flourish as a business in the present day, but to work on endeavors so that it can continue to be an economic power in the future. Monsanto invested more than $500 million last year researching new solutions for growers. The company concentrates the vast majority of its research-and-development (R&D) efforts on new biotech traits, elite germplasm, breeding, new variety and hybrid development, and genomics research. Other R&D projects support the company's current products including improved formulations of Roundup herbicide ("Investor Information", 2006).

Monsanto is now targeting its investments in developing biotech crops that are directed at benefiting consumers rather than farmers. For about ten years, herbicide resistant and insect resistant crops have been the major biotech traits. The future of the market lies in producing crops which have been genetically engineered to contain higher nutritional values, healthier benefits and tastier foods; these potential bio-crops may welcome a larger consumer acceptance to GE products. Recently, Monsanto has won federal approval for a GE corn which contains increased levels of the amino acid, lysine, a supplement given to farm animals. Although only allowed for pigs and poultry intake, this new GE corn product marks the beginning of a new trend of nutritionally superior GMOs (Pollack, 2006).

Another future endeavor of Monsanto is the development of a healthier soybean product. Industry is interested in making soybean oils intended to yield healthier baked goods and fried foods. Monsanto and other biotech companies such as DuPont are investigating the possibility of efficiently making soybeans with oil composition that does not require hydrogenation. Eliminating the hydrogenation process would help remove unhealthy trans-fats. These products are expected in three to six years. Furthermore, companies are attempting to synthesize soybeans which would be higher in omega-3 fatty acids. Omega-3 fatty acids are recently discovered to be very healthy oils which are beneficial to the heart and brain. Naturally found in fish oils, genetic engineering would be necessary to incorporate these omega-3 fatty acids into soy products (Pollack, 2006).

In 2005, Monsanto bought Seminis, the world's largest producer of fruit and vegetable seeds for around $1.4 billion. Without a doubt, the new acquisition makes Monsanto the largest seed and biotech company in the world (Pollack, 2005). While Monsanto sells seeds in only four species (soybeans, corn, cotton, canola), Seminis offers more than 3,500 seed varieties in almost 60 species of fruits and vegetables (Melcer, 2005). While most of Monsanto's revenue comes from North America, Seminis has sales worldwide; Seminis's sales were 20% of 2004's global commercial fruit and vegetable market (Melcer, 2005). The deal should add to Monsanto's profits and earnings in the fiscal year ending August 31, 2006. However, despite Monsanto's interest in advancing its transgenic research, Monsanto claims it will only use GE fruits and vegetables if their will be a consumer acceptance for them. For now, Monsanto does not intend to use genetic engineering technology on Seminis products. They believe the strength of Seminis is in conventional breeding. Monsanto will only use genetic analysis to teach Seminis breeders how to harvest advantageous traits and

how to apply molecular breeding strategies to select for desirable qualities (Melcer, 2005).

II.8 GE Case Studies

By the 1990s, Monsanto led the way for the development and utilization of genetically modified products. In the United States many of these products were accepted without much resistance.

Although biotechnological companies were heavily invested in genetic engineering, studies investigating the safety of GE-food heightened public scepticism towards GMOs. In the next section, we will discuss significant case studies that made an impact on the public perception of GMOs.

II.8.1 Recombinant Bovine Growth Hormone (rBGH)

In 1993 the FDA approved Monsanto's recombinant bovine growth hormone (rBGH). This hormone significantly boosts milk production. In 1990, Monsanto submitted a case study on rats as evidence that this hormone was safe. However, in 1998 a Canadian research group claimed that the FDA lacked data to support the alleged safety of rBGH (Hart 2002). Namely, young children's intestines are naturally more permeable than those of adults, which could allow greater absorption of the hormone (Mercola December 2001). Therefore, young children are particularly vulnerable to possible side-effects of this growth hormone.

Furthermore, studies have shown a correlation between increase in IGF-1 with an increase in colon, breast and prostate cancer since it is a growth factor that promotes rapid growth and cell division (Heaney October 1999). In another study, converging lines of evidence incriminate IGF-1 in rBGH milk as a potential risk factor for both breast and gastrointestinal cancers (Epstein 1996).

Finally, the physical side-effects of rBGH are not limited to humans. Upon treatment of rBGH, cows may develop an infection known as mastitis. This causes milk to contain high levels of pus unless the cows are treated with antibiotics. These experimental findings, combined with the mad cow disease epidemic contributed to public awareness and resistance to GMOs. Nonetheless, the FDA maintained these gene-altered products were "substantially equivalent" to its conventional counterparts.

II.8.2 Bt Corn Pollen Affects Monarchs

In 1998 John Losey conducted an experiment at Cornell's entomology department to test the effects of Bt pollen on monarch butterflies. Pollen from both genetically engineered Bt corn and from conventional corn were fed to two separate groups of monarchs. At the end of forty-four days, 44% of the monarch caterpillars that were fed a diet of leaves dusted with Bt corn pollen were dead. None of the caterpillars fed with unmodified foods had died (Hart 2002). The Bt corn was engineered to kill the insect pest, the European corn borer. However, it appeared that this additive targeted other insects as well. Losey's findings were published in the scientific journal *Nature* on March 20, 1999. This ignited a large media eruption. Soon enough, daily newspapers across the country had headlines of Bt corn killing the monarch butterflies.

This event was an example of the public's reaction to the potential effects of genetic engineering. Before Losey's article was published, many environmental groups did not object to genetically modified crops because they believed they would prevent more hazardous pesticides from entering the soil. The Bt corn issue led people to question the safety of gene-altered crops. Consequently, critics of GMOs took a more proactive stance in taking action against GE-food.

Although Losey's results suggested that Bt corn was harmful to untargeted organisms, follow-up research suggested otherwise. The majority of the studies in favor of Bt corn argued that the damaging health effects attributed to the use of pesticides outweighed any negative environmental damage that would be incurred with the use of Bt corn (Pimentel July 2000; Hellmich Richard October 2001). One particular study claimed Losey's data were misleading since butterflies are not chronically exposed to the Bt pollen. According to this study the impact of GE Bt on monarch populations will remain low or negligible, because overall exposure of monarch larvae to *Bt* pollen is low (Sears 2001). The biotech industry publicized the findings of these studies in attempt to refute the negative media attention (Hart 2002).

II.8.3 2.8.3. Bt corn in Taco Shells

In a variety of Bt corn known as StarLink corn, there was a protein, Cry9C which prevented the corn from entering the market. EPA scientists noticed that the Cry9C protein was not easily digested in human gastric juices and was not broken down in heat. These two traits are characteristic of many food allergens that could result in allergic reactions ranging from skin rashes and breathing problems to anaphylactic shock and death.

In 2000, the EPA approved this variety of Bt corn for animal feed, not for human consumption because of its potential allergen effects. However in August 2000, an alert was issued that some Taco Bell shells tested positive for the Cry9C protein. A coalition of environmental groups called the *Genetically Engineered Food Alert* went public with the information to warn people. They stated, "This Cry9C is on the market illegally for human consumption. Our coalition has stepped into the vacuum left by the FDA and EPA" (Hart 2002). It became obvious that the federal

government had not been monitoring the food supply for prohibited genetic material. Also, neither the FDA nor Kraft had the technology or methodology necessary to properly test these taco shells for the presence of StarLink corn.

On October 16, 2000 Grace Booth was a young woman from the San Francisco area who went into anaphylactic shock after eating three corn tortillas. The FDA investigated thirty-seven illnesses reported between July 1 and November 20 which were believed to be possible allergic reactions to foods containing yellow corn flour. Of those reported having allergic reactions, seventeen ate tacos, seven ate corn chips, six had tortillas, and five had eaten cereal (Hart 2002).

Kraft had to recall more than 2.5 million boxes of taco shells from grocery stores throughout America. This massive action finally brought much attention to the fact that the government was not taking the proper precautions in monitoring genetically altered foods. According to Rebecca Goldburg, a senior scientist for the environmental group *Friends of the Earth,* "This unfortunate situation demonstrates that consumers are not being protected by the federal agencies assigned this critical responsibility. The federal government is rushing genetically engineered products to market without adequate consumer protection."

A more frightening aspect of this case was the farmers' ignorance to the EPA rules. As the FDA continued their investigation, they found that many farmers claimed their seed dealers had never told them of the restrictions. Some knew of the restrictions but not of the requirement for a wide buffer zone. Some growers had no idea they were supposed to have sold the grain exclusively for animal feed. This case shined light onto the overwhelmingly growing epidemic of GE corn and to the difficulty in regulating and separating varieties of Bt corn from each other and from conventional corn.

II.8.4 The Toxic Side Effects of Roundup

Roundup resistant crops are one of Monsanto's most popular genetically modified products. Roundup is a glyphosate-based herbicide used mostly on genetically modified plants that have been designed to tolerate it. The research from one study published in the *Environmental Health Perspectives* journal, delineated the toxic effects that this herbicide has on mammalian placental cells, thus posing a threat to the agricultural laborers who are consistently exposed to this herbicide.

Experiments have shown that Roundup exhibits toxic effects on mammalian JEG3 placental cells and also disrupts the activity of aromatase, an enzyme responsible for estrogen synthesis (Nativelle-Serpentini, 2003). Data also suggests that these noxious effects occur when the Roundup concentration is only 100 times lower than the average amount of herbicide normally used by farmers on their crops. These toxic effects on placental cells and estrogen enzymes will most likely cause reproduction and pregnancy complications (Richard February 2005).

This study is not a direct criticism of the safety of the actual genetically engineered crop. It is more of a criticism of the herbicide used on the GE crops which are modified to resist the herbicide. Monsanto and other corporations encourage the superfluous spraying of this herbicide, as a way of increasing production yields, since the desired crops are designed to withstand the chemicals while the weeds are destroyed. This experiment, however, casts doubt on the safety of excessively using Roundup on these herbicide-resistant crops without caution.

II.8.5 Experiment With Rats Raises Doubt About Safety of GE Potatoes

In the 1990s, the *Scottish Office of Agriculture, Environment and Fisheries* awarded a 1.6 million pound grant to a project that would test the effects of

genetically modified foods on food nutrition. Scientists from the Rowett Research Institute, Scottish Crop Research Institute, and the Durham University Department of Biology were led by Arpad Pusztai to conduct the scientific investigation. The team of scientists used many controls and fed rats, which were under the same conditions, ordinary potatoes or genetically modified potatoes. When Pusztai measured the nutrients in the two different groups, he saw they were not equivalent. GE potatoes had 20% less protein than the unmodified line. Modifed potatoes also expressed higher levels of compounds which inhibit important digestive enzymes. These inhibitors would interfere with nutritional processes of any mammal consuming the potatoes. As another control, Pusztai added protein supplements to the rats fed with GE potatoes since the rats fed with the higher protein unmodified potatoes would naturally have a healthier advantage. However, despite the additional protein, the rats fed with GE potatoes had immune system damage and had experienced changes in the sizes of some of their organs (Hart 2002).

On August 10, 1998 Arpad Pusztai had a television interview about his study. He announced the summary of his studies which was how rats that ate genetically modified potatoes had stunted growth, their hearts and livers decreased in size and some of the rats' brains were smaller than normal. What irked him the most was how genetically modified corn and soy were introduced into the human diet without any substantial testing, controls or analysis. However, two days after the show aired, a controversy sprung up about the validity of his experiment. The Rowett Institute rebutted his claims and declined to release his results and data. They also worked very hard to discredit his research. Pusztai said, "At the time we started in 1995, there was not a single scientific publication on the potential health effects of any genetically engineered crops" (Hart 2002). Although these scientific studies were never released

as evidence, Pusztai's public interview contributed to the social awareness of genetically engineered foods.

II.8.6 The Ease With Which a Ras Gene can Transform into a Cancer Causing OncoGene

Another study proved that only a minor genetic change was required to completely change the function of a gene. Martin Dickman is a professor of plant pathology at the University of Nebraska. He specializes in comparative pathobiology so he focuses on the similarities of disease development between people, animals and plants in order to genetically modify treatments for diseases. In a specific study, he found that a fungal ras gene with a single amino acid change caused tumors in mice. A ras gene controls the growth and development of a cell. According to Dickman, "We cloned a ras gene from a fungus that attacks alfalfa. The ras gene is about 75% similar to the most common ras human gene. We took this fungal alfalfa pathogen ras gene and made a change in one amino acid-one base, one nucleotide. We changed one base pair out of eight hundred with a subtle mutation." These genes were then put into a breed of living mice that were susceptible to cancer and developed tumors immediately.

From his perspective, he was quite pleased that only a minor change was required to see a cause of a very common disease. However, these results were also very unsettling in that only one misplacement of a nucleotide base pair was needed to produce a gene which induced cancer (Hart 2002). Methods of genetic engineering all alter the sequential order of these nucleotide bases with insertions and/or substitutions of other nucleotides. The ease with which changes in amino acids can quickly transform a ras gene into an oncogene (cancer causing gene) is quite distressing.

Many of these cases were very influential in the awareness they provided to the government and to the public. Although not all of these studies had proven the

harm or safety of GMOs, it was important that people became interested in learning the effects of GE before accepting them as safe. Unfortunately, many of the GE products were already released on the market before a thorough investigation could prove them to be innocuous.

The FDA welcomed this new technology as long as these modified foods seemed adequately "substantially equivalent." However, the previously mentioned studies indicate that although the foods may seem nutritionally similar, the manipulation of an organism's genes can lead to complex, long-term complications. It was not until scientists began to question the confidence of these procedures that experiments were performed to test the safety and effectiveness of GMOs. Likewise, it was not until these cases were made public that the social awareness of such an unquestioned technology led to a social movement against this issue. These cases are just a few of many events that served to catalyze public reaction against the fast-paced commercialization of genetically modified foods.

II.9 Agricultural Genetic Engineering

The debate over the use of genetically modified organisms is complex. Although potential benefits of this new technology are improved reliability and quality of the world food supply, scientific concerns have been raised about the environmental and food safety of GE crops. Although the use of biotechnology in agriculture allows for increased crop yields, there are a number of concerns regarding the safety of genetically engineered food. Previous research has found that GE food may catalyze the evolution of super-resistant weeds, pests and carry immunogenic properties (August, 2004). Moreover, the long-term effects of genetically engineered food on the environment and consumers of GE food remain unclear.

Proponents of genetic engineering include biotech industry, some scientists, and a percentage of environmentalists. Some proponents claim that this technology will serve as the solution to world hunger. In addition, the Food and Drug Administration claims in a statement released in 1992 that the foods produced by these techniques are more precise and that they increase the potential for safe, better-characterized, and more predictable foods (FDA 1992). Furthermore, proponents of GMOs have resisted negative media attention (Torr 2001) and efforts to enforce labeling of genetically modified foods. In summary, the major arguments in favor of the use of biotechnology are increased quality and quantity of food production, reduction of farmers' production costs and reduced pesticide use.

A large percentage of GE seeds contain the pesticide-resistant *Bacillus Thuringiensis* (Bt) gene. Proponents of biotechnology claim that employing genetically engineered seeds will increase the efficiency of farmers because these genetically engineered Bt crops do not require insecticides (Christopher 2000). As a result, proponents of genetically engineered food claim that these crops are engineered to promote higher production rates and lower farming costs.

However, some claim that the gratuitous use of Bt will accelerate the development of Bt-resistant pests (Halweil, 1999). GE crops containing the Bt gene secrete levels of Bt that are ten to twenty times more potent than conventional Bt sprays. As a result, the constant exposure of Bt to common pests such as the cotton boll-worm, bud-worms, and potato beetles may result into the development of "superpests" – which are naturally resistant to the Bt-pesticide.

The potential development of superpests does not bode well for organic farmers. Namely, organic farmers' pest management methods lack the robustness of those that use biotechnology (Lilliston 2000). In the future, if Bt sprays are not

sufficient to manage pest control, organic farmers will greatly suffer since the options for natural pesticides are limited (Lilliston, 2000). A Maine organic farmer, Jim Gerritsen, stated in 1997, "We consider the transgenic application of Bt to be unwise because of the high likelihood that they will rapidly accelerate resistance to Bt. Should we ever lose Bt, our ability as natural farmers to grow quality produce will be in serious question" (Greenpeace Center for Food Safety and Organic Farmers, 1999).

Similar concerns have been raised regarding the use of herbicide-resistant crops. A variety of weeds – for example, wild mustard, wild radish, ryegrass, and goat grass, are developing resistance to herbicides because of the overexposure to excess amounts of herbicides used on GE crops. An example of this phenomena occurred in Canada in the year 2000 when scientists found that weeds near GE canola had developed resistance to at least three different herbicides (Lilliston, 2000).

In conclusion, although the biotech industry and some farmers hail the use of genetic engineering as the ultimate solution against damage caused by pests and herbicides, wanton use of GE techniques may result in the evolution of superpests and herbicide-resistant weeds. Opponents of GMOs are wary of the long-term effects of the use of biotechnology on the environment, and ultimately the food supply. Arguably, although the use of biotechnology may increase agricultural productivity on the short-term, the long-term effects of this technology are still unknown.

Safety of GMOs

The controversy surrounding the safety of GMOs is multifaceted; supporters of the use of biotechnology in agriculture argue that GE-crops will yield health benefits, while opponents question their safety. Techniques are currently being developed to increase the concentration of important nutrients such as vitamin E, carotenoids, flavonoids, glucosinolates and the proteins found in corn. However,

many question the accuracy, reliability and reproducibility of genetic engineering techniques. Although scientists can isolate the desired traits to inject into the host organism, they cannot precisely control the exact location where the trait will be inserted into the host's genome; this lack of control when altering DNA may result in unexpected biochemical effects. Because of this complex technology, many activists are concerned by the magnitude of "unknown information". As a result, many opponents of the GE practices question the safety of GE-foods. (Lilliston, 2000). These concerns have been somewhat justified by scientific studies.

For example, at the University of Chicago, scientists found that two GE lines of mustard plant families, which were created by the same process, differed significantly in their ability to cross breed with plant relatives. This was attributed to the different locations of each of the genes inserted into the mustard plants (Bergelson, 1998). In another study, scientists found that introducing foreign genes into DNA alters the normal configuration of the genome, which may result in metabolism destruction (Inose 1995). Finally, in 1988 thirty-seven Americans died and over five thousand patients were afflicted with a serious blood disorder as a result of taking drugs (L-tryptophan, manufactured by Showa Denko K.K.) produced by biotechnological techniques. Safety tests for the GE brand were not required by the FDA because the GE product was claimed to be "substantially equivalent" by the FDA to similar products on the market. The FDA pulled the GE L-tryptophan off the market after the incident (Lilliston, 2000). These cases provide compelling evidence that genetically modified foods are not inherently safe.

There is an apparent dissimilarity in how supporters and opponents of GE-food define "safety". While proponents of biotechnology claim that GE-food is not only safe, but in fact nutritionally superior to conventional food, opponents are

concerned about the reliability and reproducibility of these GE techniques. Proponents of GE also argue that all foods carry some risk. This dissimilarity suggests that perhaps proponents of biotechnology base safety standards on the *final product*, while skeptics of GE-food question the safety and effectiveness of the *process* by which the food is produced.

II.10 Social Movement Theory

Since the beginning of civilization, people have participated in mass behaviour techniques to help achieve their goals. It is a universal truth that a group of people holds much more weight than the voice of one person. There is a growing power in higher numbers and people across the globe have learned to take advantage of this concept.

Crowds, riots, fashions and fads are all examples of temporary collective behaviours. Collective behaviour usually involves a group of people in a relatively unstructured and spontaneous situation (Popenoe 1993). Although usually evanescent, these collective behaviours may sometimes ignite a multitude of interrelated group actions. For example, sit-ins, demonstrations, riots, rallies and marches have led to larger scale social movements such as the civil rights, women's liberation and gay rights movements (Popenoe 1993).

Social movements vary from collective behaviour in several ways. Social movements are usually much longer in duration and have more of an organized structure consisting of leadership and sponsors. They tend to be a highly established, long-term commitment having goals with defined political reforms.

A social movement's success correlates to an increasing or decreasing level of support. As the movement weakens, public awareness diminishes which then results in a smaller investment of time, effort and money. Likewise, if the interests, cultures

and priorities of society shift, it is highly likely that a social movement may fade and eventually disappear. For example, as time progressed, so did people's opposition to alcohol; this eventually ended the temperance movement to prohibit the sale of alcohol (Popenoe 1993).

There are four principle traits which characterize a social movement. First, there must be a new or changed perspective. Second, there must be an ideology which will help members stay focused and loyal, especially when resistance is encountered. There must be a commitment to action as well as the belief that actions must be taken in order to cause a change. Lastly, there must exist a structured form of leadership which will provide direction without potentially monopolizing the ideals of the movement (Popenoe 1993).

On many occasions throughout history, a plethora of public concerns have erupted into a more clearly defined social movement. Although it is difficult to put a label on specific movements, there do exist different types of social movements; they are classified as reform, revolutionary, resistance and expressive movements. Reform movements seek to improve society by changing certain aspects of the social structure. Examples of reform movements include the disabled rights movement, the movement to end homelessness and the Mothers Against Drunk Driving (MADD) movement. Revolutionary movements attempt to overthrow an existing social structure and replace it with a new one. These goals seek more radical changes. An example of a revolutionary movement was the fundamentalist Islamic revolution that occurred in Iran in 1979. Many changes in government and power which have taken place in nation-states around the world have begun as revolutionary movements (Popenoe 1993).

The third class of social movements is the resistance movement. Resistance movements try to prevent change or try to reverse a change which has already been achieved. Examples of resistance movements include the opposition to racial integration in the school systems and the fight of pro-life groups to override the *Roe v. Wade* case of the Supreme Court. The fourth type of social movement is the expressive movement. Unlike the previous three movements which tend to focus on politics, expressive movements usually have more of a religious or secular focus. They try to provide people with a level of personal transformation in the form of a different ideology, a new identity or a sense of emotional satisfaction.

A majority of the social movements which have an impact on society develop gradually. This continuum of growth is marked by a series of four stages. The initial stage is the preliminary stage, characteristic of restlessness in the public, inefficient efforts at finding solutions and conflicts between several smaller groups. The popular stage is the second stage and emerges when the discontented groups become aware that many other groups share their views. During this level, people realize the potential for a larger scaled movement and leaders start to emerge. In the formal organization stage, values, goals, a hierarchy of leadership, a set of policies, plans of action and a sense of unity and direction are developed. This stage is a major transition from public speaking and educating society to plans of actions and strategies in finding solutions. The last stage is when the social movement becomes an institution accepted by society. This is the institutional stage and although the passion and aggression of the masses may be diminishing at this stage, the administrator-executive powers are at their highest (Popenoe 1993).

The opposition to the expansion and development of genetically modified organisms is an example of a social movement. This struggle has been a long-term

movement with many anti-GE groups and sponsors attempting to pressure the government into mandating genetic engineering free zones and/or establishing a system of segregation such that people have the right to know and choose what they are ingesting. This GE-free movement has goals of establishing GE-free zones, requiring stricter safety inspections and requiring a food label for genetically modified ingredients. We will try to determine which type of social movement the GE-free movement is and at what level of development it is currently in.

II.11 Stakeholder Group Theory

Stakeholder group theory uses a range of applications to help describe a group of people on the basis of their goals, attributes, relationships, and interests related to a particular subject or resource. A stakeholder is defined as any group or individual who can affect – or is affected by – the achievement of a firm's purpose. Current literature suggests that the degree of a stakeholder's discontent is the main factor in determining whether a stakeholder will take action. Rowley et al. created a group action model that attempts to determine when stakeholder groups will influence the firm at hand. Rowley et al's theory applies to groups in which individuals are consciously united.

The stakeholder group mobilization model is comprised of three core elements. One major principle of this theory involves an interest based perspective in which a group's inclination to mobilize is motivated by its particular interest in obtaining its goals. Second, the model offers an identity-based perspective as an alternative motive for action; this perspective suggests that a feeling of solidarity and commitment to mobilization is the chief motivating factor because a feeling of identity and purpose is rewarding in itself. Third, these two motives are conditioned by the degree of overlap across stakeholder groups. Depending on the circumstances,

an overlap of interests and/or identity can serve as either a promoter or inhibitor to group action. This model embraces the concept that human behaviours and motives are variable and flexible.

Research relevant to stakeholder mobilization involves stakeholder classification and stakeholder behaviour. Other research attempts to explain how stakeholders try to influence the focal organization. Stakeholders' interests drive them to mobilize. Rowley et al. discuss three aspects of stakeholder perspective. First, stakeholders are defined in terms of their interests; they have an interest in the focal firm's actions because they are affected by the firm's behaviour. Also, stakeholders bear some form of risk in relation to the firm and therefore have claims on how the firm should allocate resources under its control. Second, firms must pay attention to stakeholders in cases of co-dependence (in this case, the biotech industry must pay attention to the mainstream consumer perspective because if there is no demand for a product, then the companies will not make a profit) Third, stakeholder groups are more likely to take action when their desired end states are perceived not to be achieved because of the focal organization's behaviours.

Three critical attributes define stakeholders: power, legitimacy and urgency. A stakeholder's likelihood of being noticed and involved is a function of the stakeholder's power to influence the firm, the legitimacy of a stakeholder's relationship to the firm and the urgency of the stakeholder's claim on the firm ("Concept: Society Chapter 5").

In order to have the most impact and influence, arguably the most important attribute of a group is power. Power is the capacity to achieve outcomes. There are four modes of power: power as attributed to a person (an endowment): the ability of one ego to impose its will on an alter, in social action or interpersonal relations;

"tactical" or "organizational" power that controls the setting for interaction: "structural power" based on the notion of power as an "ability to structure the possible field of action of others". This is known as the governing power. Structural power can render some behaviour possible while making other less possible or impossible ("Concept: Society Chapter 5").

In addition to possessing these important attributes, in order to be an effective stakeholder, groups need access to resources that assist in organizing collective action. Resources refer either to material resources such as money or nonmaterial resources such as leadership. The interest based perspective maintains that interests must be organized to produce collective action. Groups must have access to resources to organize discontent and to reduce the costs of individual participation. Thus, the abilities to organize and mobilize resources are necessary for implementation.

Previous research suggests that a group's degree of discontent is related to the likelihood it will mobilize to protect its interests. The stakeholder model assumes that stakeholders have interests, have the goal of protecting or enhancing these interests and are more likely to act when there is a sense of urgency.

Where originally only stakeholders' interests drive the group to mobilization, Rowley et al also discusses an identity-based model of stakeholder interest. In this model it is necessary first to distinguish between the identity of an individual and the identity of a group, whereby the social identity of a group often reflects the ideals that individuals share. Action may be taken by groups to affirm the members' collective identity. Individual identity formation is produced through group action that expresses the group's uniqueness to non-members. Moreover, if the expected benefits of action are small, individuals may mobilize because the act of acting is the main objective. Rowley et al. propose that a stakeholder group that shares a common identity and

bond is more likely to mobilize to influence the focal organization than a stakeholder group that represents only its members' shared interests (Rowley et al, 2000).

Secondly, the identity-based model of stakeholder mobilization involves the idea of "consciousness mobilization". Consciousness mobilization may be necessary to organize action and refers to the process by which participants come to know themselves as a collective. Thus identity is a very powerful factor; the feeling of solidarity acts as a catalyst for collective action. Therefore, group action can be motivated by the expression of the identity that certain actions confer on those members associated with the group (Rowley et al, 2000).

The stakeholder group mobilization model also predicts that groups that have organized for collective action in the past are more likely to mobilize in the future. Previous struggles result in social ties which have been already formed among members of the stakeholder groups. This pre-existing social network helps facilitate effective communication and creates a better mutual understanding of how to address dissatisfaction. This enhanced communication is vital because collective action may only occur if oppression is collectively defined as unjust and subject to change. Thus, the density of ties within a stakeholder group also influences the group's ability to mobilize. Furthermore, because the influence of past action is transferable to focal organizations, stakeholder groups that have mobilized in the past are more likely to mobilize in the future than other groups (Rowley et. al, 2000).

Interest and identity overlap across stakeholder groups influences the probability of action. Individuals can belong to multiple stakeholder groups. From the identity-based perspective, an overlap of identities between stakeholder groups can decrease the likelihood of stakeholder action because people are less likely to be motivated to express themselves when their identities are not unique in comparison to

other stakeholder groups. From the interest-based perspective, a stakeholder group faces substantial collection action costs when its members belong to other stakeholder groups with conflicting interests. Therefore, an overlap of different interests will decrease the chances of mobilization in contrast to an increased chance of mobilization when there are similar interests within a group or between two stakeholder groups. Conclusively, as overlap can work in favor or in opposition to group mobilization, the dynamics of stakeholder groups are variable and conditional to a particular circumstance (Rowley et al, 2000).

II.12 GE-Free Global Movement

Although this project focuses on the social movement against genetic engineering in the state of Vermont, this social movement not only spans the country but affects the entire world. Since scientists thrive to compete in the latest of technological developments, there is no doubt that the United States is not alone in this emerging biotechnology. Also, most genetically modified crops are exported to other countries so what is grown in one country certainly has effects on people outside of national borders.

In many countries, activists have demonstrated their opposition to the development of GMOs. On January 27, 1997 in Austria, Belgium, Finland, France, Germany, Italy, Spain, Switzerland and the Czech Republic, hundreds of Greenpeace activists participated in a demonstration outside of food companies demanding the end to genetically engineered soy in their foods. Activists in all fifteen nations of the European Union caused the EU agricultural ministers to require food labels for GE soybeans and corn on May 26, 1998. In one example, around one fifth of Austria's adult population signed a petition in April 1997 urging their government to prohibit the sale of GE products (Hart 2002).

Countries including Japan, Korea, Australia and New Zealand led the struggle to demand food labeling so consumers could have the choice of what they were eating. International consumer groups in the Pacific regions quickly reacted to doubts about genetically engineered crops. The chairperson of the Consumers Union of Japan, Yoko Tomiyama, spoke for the majority of the public when she said, "Japanese consumers are seriously concerned about the potential health and environmental hazards of GMOs. We believe that there is solid scientific basis for our concern"(Hart 2002). In response to Japanese public opinion, in August 1999, the government required the labeling of GMOs to take effect by April 2001. As a result, food processing corporations responded in order to not lose business. For example, the Japan Tofu Association pledged to only use unaltered soybeans while the Kirin and Sapporoto Breweries announced they were not using genetically modified corn (Hart 2002). Similarly, in March 2001, the Korean government approved the mandatory labelling of GE corn, soybeans and bean sprouts.

A very radical country in its demands for strict labelling laws is New Zealand. In August 1999, the Australian New Zealand Food Authority (ANZFA) required food labels. By 2000, ANZFA health ministers adopted a strict policy for food labeling which would be enforced by the middle of 2001. Despite the opposition and efforts of the food industries, the people of New Zealand felt very strongly about this issue and influenced their government to enforce the proper regulatory actions (Hart 2002).

Countries part of and surrounding the United Kingdom have also had their share of resistance to this new biotechnological wave. For example, on June 3, 1998 people raided numerous farms in the British counties of Derbyshire, Worcestershire, Gloucestershire, Lincolnshire, and Nottinghamshire. All of these farms were growing Monsanto's genetically modified oilseed plants. This was just one of many radical

demonstrations in which activists trespassed onto farms at night with scythes and other gardening tools in order to tear up the soil. Prince Charles of Wales praised these acts and publicly condemned this transgenic biotechnology. Quoted in the June 8, 1998 edition of the *Daily Telegraph,* the Prince announced how genetic engineering "takes mankind into realms that belong to God and God alone. We simply do not know the long-term consequences for human health and the wider environment of releasing plants bred this way" (Hart 2002). Without a doubt, Prince Charles's support of the anti-GE movement contributed to the public awareness of the issue. His support also provided incentive and motivation to continue with these demonstrations of resistance.

This pattern of resistance against genetically altered transgenic crops seems more prevalent in other parts of the world than in the United States. A major reason may be the cultural and historical roots of these foreign countries compared to the social standards of American society. For example, the United States has been an established economical, industrial and military power for many years. A large proportion of U.S. citizens have a sense of security and comfort. However, other countries have battled over power in the government, the right to practice certain religions and difficult economic problems. Because of this, it is logical that more people in Europe and Asia are more sceptical of these genetically modified products. Many foreign countries also believe America to be very economically driven, leaving them little doubt that American corporations will push for a new product without the proper testing as long as it makes a profit.

An example of how a society's culture can shape how people view genetic engineering is Ireland. One of many anti-GE acts took place in Ireland on September 28, 1997. A small group dug up a one acre plot of genetically modified sugar beets

which had been planted by Monsanto. Members of the Green Party publicly praised this act and declared the importance of preserving naturally grown crops. Perhaps a reason the Irish are so passionate about this issue is because of its history with the potato famine. A spokesperson for *Genetic Concern!*, Clare Watson, said, "Our history tells us that who controls the food supply is a life and death matter...Foreign ownership of agriculture is a subject that touches an emotional chord with the Irish" (Hart 2002). Furthermore much of Ireland's economy relies on its tourism. The Irish take pride in their beautiful landscapes and its naturally bright blue water. The expansion of GE poses a threat to what this country is known for, it's beautifully natural green lands.

III. Methodology

III.1 Overview

The objective of our project was to illuminate the social movement in Vermont against genetically engineered foods. We employed the case study as a research strategy. Archival research and interview data were utilized to identify the characteristics of the GE-free movement in Vermont. Interviews with farmers and activists against the use of biotechnology in food were conducted. We investigated the decisions of policy makers and regulatory agencies based on archival sources. We conducted interviews with policy makers as well, including Vermont's Secretary of Agriculture, Steve Kerr.

We decided to limit our study to Vermont due to time and material constraints. Vermont, which is in close proximity to Worcester, MA, would facilitate the opportunity for direct observation and personal interviews. Moreover, Vermont, a progressive state, has a strong movement against GE.

We applied stakeholder theory in an attempt to analyze and elucidate our findings. Stakeholder theory traditionally applies to the stakeholders in a firm (Freeman 1984). The robustness of stakeholder theory is due to the fact that the roles of factions – i.e. political groups, governmental bodies and trade unions – are recognized in addition to the roles of investors, employees and suppliers. The view of the firm is used to define the specific stakeholders of a corporation – stakeholder identification – as well as examine the conditions under which these parties should be treated as stakeholders – stakeholder salience. In our study we applied the stakeholder theory to the GE-free movement in Vermont, where the "firm" referred to the different GE-activist groups in Vermont as a collective (Buckles 1999). The

application of the stakeholder theory to our findings augmented our study, because it facilitated the investigation of a wide range of stakeholders.

Finally, we made qualitative conclusions regarding Vermont's social movement against biotechnology and its implications for the future of the agricultural industry in Vermont.

III.2 Identification of Key Actors

Four stakeholder groups were identified as being the key actors in the GE-free debate in Vermont. These groups were chosen because they were determined to be important in shaping this debate. These stakeholders are all directly involved in the debate in some way and their attitudes and practices are critical to the debate. The groups that we identified were:

- Federal government (FDA, USDA, EPA)
- Vermont state government
- Biotech industry (Monsanto)
- Vermont GE-free activist groups

The Federal government is responsible for the legislation of GMOs on a national level. We focused on the Food and Drug Administration, the United States Drug Administration, and the Environmental Protection Agency which are responsible for regulating GE foods.

Vermont state and local government constitutes one stakeholder group. This group has the ability to enforce legislation on GE in Vermont. Ultimately, these two government groups have the necessary power to influence the manufacturing, marketing and labeling of genetically engineered crops.

The third major stakeholder group is the biotechnical industry. This group includes the biotechnological corporations who support, synthesize, and sell GMOs.

Monsanto, DuPont and Novartis are examples of nationwide biotech corporations. Their policies were worth investigating because their products are available to Vermont residents and farmers. Additionally, these companies have influence on federal legislation.

The fourth major stakeholder group is comprised of the anti-GE activist groups of Vermont. Some of the organizations that we investigated include Rural Vermont; Genetic Engineering Action Group; Institute for Social Ecology; the Vermont chapter of the Northeast Organic Farmers Association; and the Vermont Progressive Party. Each of these organizations was chosen because they have official members who actively seek to make reforms. These groups have an impact on legislative decisions. In addition, they attempt to have influence on society's awareness of genetically engineered foods.

Finally, we identified farmers and consumers of Vermont as two categories of activists. Interviews were used to explore the consumer perspective of GMOs. In addition, we attempted to investigate how the "common farmer" perceives GE but found organic farmers were most active in the movement. The discrepancy between the consumers' and farmers' views contributed to our analysis of the GE-free movement in Vermont as a social movement.

III.3 The Case-Study Method

The purpose of this project was to understand the events surrounding the GE-controversy in Vermont. We examined the evolution of activist movements opposed to the use of genetically engineered seeds in Vermont. The interplay among activist groups, federal regulatory agencies, local and state government, and biotech industry was investigated.

III. Methodology

The case study method was selected because it was deemed the most suitable method for our purposes. Yin defines the case study as an "empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident"(Yin 1994). Specifically, the phenomenon – here, the evolution of GE-activist groups in Vermont – could not be adequately studied without examining the organizations that influence the regulation of GE-foods, manufacturers of GE-seeds and consumers of GE foods. Hence, this study investigated the entire network surrounding the GE-free controversy in Vermont.

The case study method allowed for the use of multiple assessment methods and any mix of quantitative and qualitative evidence (Yin 1994). Given that the main sources of information available to us were of a different nature – namely, interviews, observations and archival material, the case study method was most appropriate for our purposes.

Units of analysis included the activists of the GE-free organizations, federal and state government, farmers and biotech industry. Specifically, our main unit of analysis was defined as the relationships among activists within the GE-movement. The degree to which different activist groups overlap in interests in objectives was observed. In addition, potential congruence problems were identified. For the purposes of this study, the main role of the federal and state government, farmers and biotech industry was to provide a context for understanding the GE-free movement in Vermont. However, in some cases these different groups overlapped—i.e. in the case of organic farmers and GE-activists.

Our main objective was to determine patterns in interviews and correlate these findings with recent GE-related events in Vermont. Although the goal of our study

was not to determine causal relationships, we found pattern matching helped us gain a more complete understanding of the GE movement in Vermont. Additional criteria for interpreting our study's findings was provided by stakeholder theory—a type of organizational theory, as well as social movement theory.

The main limitations of our methodology were innate to the case study method. It is important to note that this study represented a unique case. Thus, it is difficult to confirm the repeatability or reliability of our findings. For example, the majority of our interviews were conducted at a unique event – namely, an annual NOFA Conference. Thus, this single case study served mainly a revelatory purpose. However, we verified our project's construct validity with triangulation. In addition, our key informants did have the opportunity to review our case study report and submit their feedback. Finally questions were specifically designed to explore general topics: methods to engage non-activists to become active members in GE-free movement, activists' opinions on the roles of regulation agencies and biotech industry, and their insights on the recent events in Vermont..

III.4 Data Collection: Government and Biotech

Archival records, letters, agenda reports, newspaper articles and legislation were used to describe the federal government, Vermont state government and biotechnical industry stakeholder groups. Public statements found in documentation facilitated a description of federal government, Vermont state government and biotech industry. Interviews were not chosen as a source for these groups due to limited time and resources.

Since this aspect of data collection required extensive research and focus, the responsibility for researching each stakeholder group was divided: Helena was

designated the Federal level of government, Ryan the description of the Vermont government, and the description of the biotechnical industry.

III.5 Interview Methodology

Interviews were conducted as the primary source of data for the GE-free activist group, consumer and farmer stakeholder groups. Phone interviews will be performed if more convenient and feasible. Archival sources will be utilized for our data collection in order to construct a brief background of each group.

In-person and phone interviews were recorded and transcribed. Recording interviews facilitated accurate transcription. Transcripts of the interviews and interview protocol can be found in Appendix A. The first set of questions focused on the subject's awareness, concerns, and personal views on the issue of genetically engineered products. These questions contributed to our understanding of the general reasons why this movement initially developed. Furthermore, these questions helped assess the degree of awareness and discontent there was in Vermont regarding genetically engineered crops. The second group of questions pertained to members of GE-activist groups. These questions focused on the groups' rationale and strategies. These questions provided us with an understanding of how GE-activist groups mobilize and recruit new members. In addition, these questions provided us insight to how these GE-activist groups interact with other stakeholders of the biotech industry.

Contact information for each GE-free group was located on activist organizations' official websites. Most interview appointments were arranged via phone calls. We interviewed thirty subjects total, many of whom are members of GE-activist groups, organic consumers and Vermont legislators.

On February 11, 2006 the team attended a NOFA-VT Winter Conference held at the Vermont Technical College in Randolph, Vermont. This all-day event provided

us with the opportunity to interview with members of the Northeast Organic Farming Association (NOFA) as well as with the attendees of the conference, all of which qualified as Vermont consumers and/or farmers. In addition, observations were recorded throughout the day.

III.6 Analysis

After data collection had been completed, we analyzed the data to gain an understanding of the different stakeholder groups' roles in the anti-GE movement in Vermont. We determined how well our findings concurred with a stakeholder theory's concept of group mobilization and influential strategies, as well as social movement theory. Theoretical concepts from articles on stakeholder theory (Frooman 1999; Rowley 2000) served as the basis for analyzing the case.

We gained an understanding of which factors were important to the different activist groups' mobilization and whether these groups had access to material and non-material resources in order to obtain their goals. Factors which promoted group mobilization included member participation and a common overlapping interest in personal values and goals. Crucial non-material resources included effective leadership and organization. In addition, we explored the variety of strategies employed by each activist group and determined which were effective (i.e., public speakers, conferences and newspaper articles).

Stakeholder and social movement theory facilitated data analysis. Stakeholder theory allowed us to clearly understand and make conclusions about the evolution of the GE-activist movement into a social movement.

IV. Case Study

Two key stakeholder groups which hold much power in the issue of GE technology are the biotech industry and the Federal government. The biotechnology corporations have introduced this recently developed science over the last several years and the federal government agencies have reacted to it with safety and regulation laws. On a national level, both of these stakeholder groups possess a considerable amount of control over GMOs, thereby affecting Vermont policy and having an influence on the state's social movement.

The organic farming community as well as many progressive and food conscious individuals have united, either officially in organizations or informally in beliefs, to collectively form what is known as the GE-free social movement. As a group, these activists or opponents to GE products have taken the initiative to question the validity of not only this GE technology, but the Federal government's acceptance of it. In order to attain some of their goals, Vermont activists have tried to influence state legislation in the Vermont government, another key player in the progress of this social movement.

IV.1 Monsanto: the Leading Corporation in the Biotech Industry

Some of the most popularly known biotech corporations are Monsanto, DuPont, Calgene and Novartis. Our case study will focus specifically on Monsanto as a model and representative of the biotech industry because it is the leading seed and agro-technology corporation in the world. As of 2004, Monsanto owned 91% of the world's commercially grown GE seed; 70% of these crops are modified to tolerate herbicides (Abel 2004). Monsanto is the principal provider of numerous agricultural products including Roundup, the world's best selling herbicide, and top seed brands

including DEKLAB and Asgrow. Furthermore, Monsanto seems to be the most infamous institution within the anti-GE community; it was the most frequently mentioned company in our interviews as being the chief threat to traditional agriculture. When asked to identify the major threat to the GE-free movement, examples of responses included:

> *"I think that it's primarily Monsanto is the one that comes to mind."*
>
> *"Definitely Monsanto is a big name that's pretty well known, there's probably a lot of other small things."*
>
> *"Well to pick on people, Monsanto's the name that comes up constantly. Everybody knows about Monsanto."*

Brian Tokar from the Institute of Social Ecology was more informed on the issue regarding the extent of Monsanto's power in the country and in the state of Vermont. He noted how biotech companies have invested money in national lobby groups including the *Farm Bureau* and the *Grocery Manufacturers of America*. These groups, which are spending money heavily in their Vermont chapters, have strong ties with Monsanto. Tokar stated, "There is a lobby group called *Crop Life International* which is also mostly Monsanto that has been pretty active here (Vermont)." Evidently, Monsanto has a strong presence both on the state (Vermont) and national level.

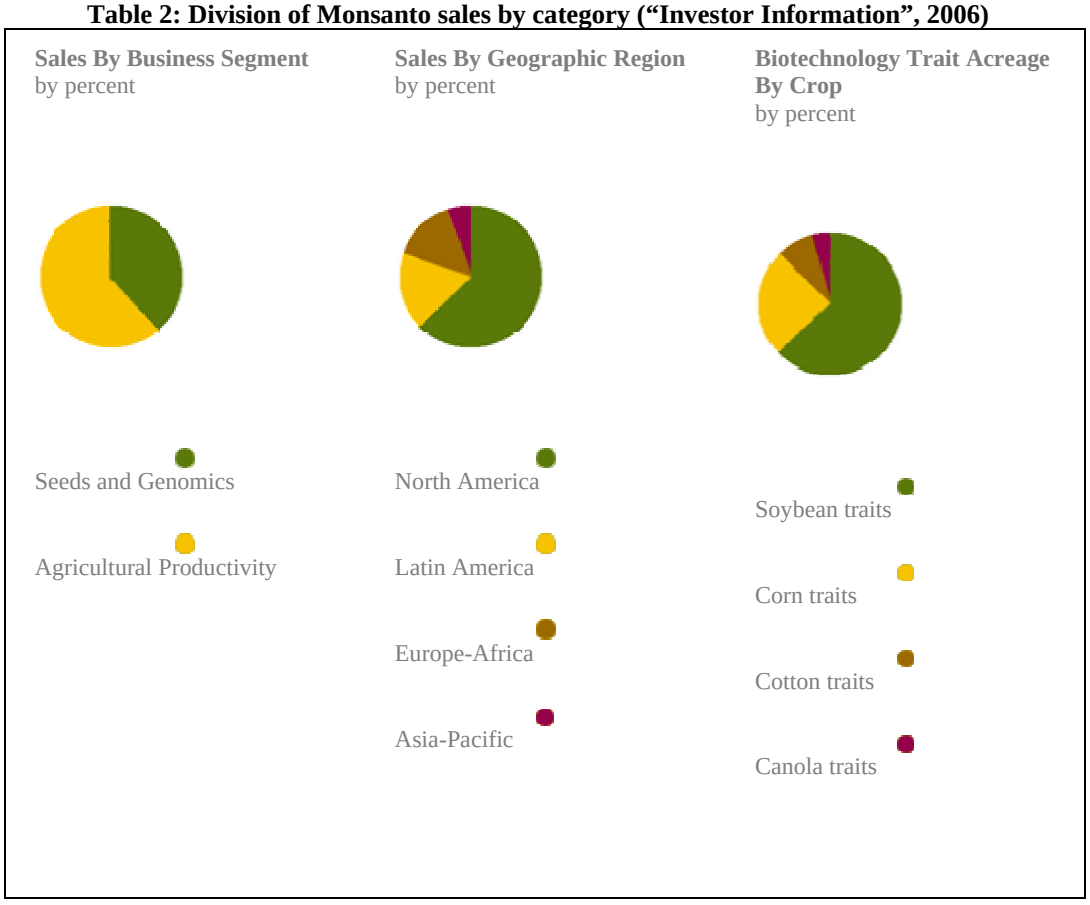
IV.1.1 Finances and Earnings

Monsanto's business is managed in two segments: *Seeds and Genomics*, and *Agricultural Productivity*. The *Seeds and Genomics* segment includes the technological platforms and advancements in the science of plant genomics as well as the manipulation of genes in living plants to express desired biotechnology traits. Monsanto also provides other seed companies with genetic material and traits for their seed brands. The *Agricultural Productivity* segment consists of the herbicides, namely

Roundup, which constitutes the lawn-and-garden herbicide business and the animal agricultural business (Monsanto 2006).

Monsanto earned $656 million for the first quarter of fiscal year 2006. This is 40% higher than what they had earned for the same period last year. (Profit was $468 million in 2005 for the first quarter). Below are pie charts which show the breakup of Monsanto sales by the type of business, geographic region and type of genetically engineered crop. The *Agricultural Productivity* segment dominates in sales over the *Seeds and Genomics* segment. By location, the majority of sales occur in North America. According to the type of marketed biotech crop, the soybean biotechnology traits are responsible for the most profits (Monsanto 2006).

Table 2: Division of Monsanto sales by category ("Investor Information", 2006)



IV.1.2 Monsanto Pledge and Contributions to Society

Located on the company website, Monsanto has a section, *The Monsanto Pledge*, dedicated to the reasons why and the methods how they can provide solutions to worldwide socioeconomic, health and environmental problems. The most prevalent concern on this page entails the challenge of feeding the growing global population. Monsanto claims it can be a great help because "according to the International Food Policy Research Institute, alleviating food insecurity depends on the quality and productivity of agriculture" (Monsanto 2006).

Soil degradation, insufficient fresh water, and limited quantities of arable land have all contributed to the downfall of agricultural productivity. Monsanto believes that since its agricultural technology is aimed at increasing product yields, less land would have to be cleared for farming purposes thus they can preserve natural ecosystems; such preservation would prevent forest loss and prevent fragmentation of natural habitat which would severely affect global biodiversity.

More specifically, Monsanto outlines four global challenges: sustainability of farmlands, food security, food for the heart, and climate and energy options (Monsanto 2006). Monsanto claims that with regards to its role in agriculture it is capable of minimizing the potential risks of these problems as it continues to fulfill its commitments to benefit customers, shareholders, society and the environment. Monsanto's solutions to these problems are summarized in their personal statements found on the company website and are summarized below:

<u>Global Challenge: Sustainability of farmlands:</u>

Through its biotech products, Monsanto claims to increase agricultural productivity and reduces impacts on farmland and the environment. Monsanto's advanced technology in the field of plant genomics allow us to select for desirable characteristics which can increase yields and help protect the soil and the environment, thus promoting more sustainable agriculture.

Global Challenge: Food Security

Monsanto works with both large and small growers to maximize yields, protect the environment and provide access to necessary technology and integrated agricultural systems, thereby improving food security.

Global Challenge: Food for the Heart; Improving Nutrition of Foods

Monsanto is trying to develop new vegetable oils with a higher monounsaturated fat and lower saturated fat content, hence a new line of healthier oils. This new strain of oil will contain less trans-fatty acids which will make the food product much healthier for the heart.

Global Challenge: Climate & Energy

Monsanto has developed crop varieties that have a smaller need for fertilizers which can release nitrous oxide into the atmosphere. The company has also been involved in programs to encourage the use of bio-energy sources in agricultural production, as well as encouraging farmers to employ methods that substantially reduce carbon dioxide and nitrous oxide emissions ("Global Challenges", 2006).

IV.1.3 Monsanto - Public Relations

Monsanto spokesmen and executives attempt to gain public support of their GE technology just as much as anti-GE activists try to expand social awareness and opposition to it. Below is a table of quotes from articles and public statements which represent the Monsanto perspective on GE products. Some quotes are rebuttals to anti-GE claims while other statements announce future endeavors and benefits of Monsanto products.

One theme describes how Monsanto's technology, which results in increased food yields, improved food quality and reduced pesticide use, will benefit both the consumer and farmer. The next set of quotes focuses on the business strategies of Monsanto which involve exploring the potential market for biotech fruits and vegetables in addition to expanding investment opportunities to other areas of the world. In one particular quote, it was clearly stated that Monsanto's "interest is in selling as much of it as possible. Assuring its safety is the FDA's job." Other Monsanto statements argue that anti-GE activists' claims are fallacious and that many

anti-GE lawsuits and activist groups do not represent the mainstream American opinion.

Table 3: Statements from Monsanto Representatives

Monsanto Representative	Quote	Source
Bryan Hurley: spokesperson	"*There are tremendous benefits to biotechnology…hundreds of thousands of farmers across North America are benefiting from increased crop yields, reduced pesticide use...*" (O'Neill, 2004, p.9)	"Seed Company Patents Anger Farmers; Restrictions Mean Seeds Can't be Saved and Used to Plant Future Crops" - *Stratford Beacon Herald*
Phil Angell Director of Corporate Communication	"*Monsanto should not have to vouchsafe the safety of biotech food, our interest is as selling as much of it as possible. Assuring its safety is the FDA's job.*" (Garcia, 2004)	"The Future of Food" Documentary
Charles Burson: Monsanto's General Counsel	"*We believe that the plaintiffs in this case do not represent American farmer's opinions or experience about biotechnology farm products.*" (Stroud, 2005, p.C02)	"Biotech Foes Lose Appeal in Monsanto Suit" - *St. Louis Post-Dispatch*

IV.2 The Federal Government

The United States government is a significant stakeholder in the GE free movement in Vermont because they are the governing body responsible for safety testing protocol, regulation laws and labeling statutes for GE foods. The federal government's decision to support agricultural genetic engineering has made the introduction of GMOs into our food system possible. This nationwide decision has served as a catalyst for the Vermont resistance to GE products, which explains why the federal government is a key stakeholder in Vermont's GE-free social movement.

According to the U.S. Food, Drug, and Cosmetic Act dating back to 1958, foods that are "Generally Regarded as Safe" (GRAS) are exempt from pre-market testing. The FDA places GE foods in this GRAS category. According to this act, labeling is only required when something is a "material fact" to consumers. According to the FDA, a "material fact" applies only when a food contains a known allergen, or decreases the nutritional value of the food. Therefore, there is no labeling

requirement for genetically engineered foods on a federal level in the United States (FDA 1992).

IV.2.1 National Policy for GE Food

The first release of a genetically modified organism occurred in 1983, when strawberries were genetically engineered to prevent frost damage (MacKenzie 2000). In response to the controversy that resulted from this release, a White House committee was formed in 1984 to propose a plan for regulating biotechnology. In 1986, the Co-coordinated Framework for Regulation (CFR) of Biotechnology was published by the Office of Science and Technology. This plan specified the Animal and Plant Health Inspection Service (APHIS) of the USDA, the EPA and the FDA as the primary governmental agencies for regulating biotechnology in the USA.

The Co-coordinated Framework for Regulation of Biotechnology is still in effect (MacKenzie 2000). The concept that biotechnology does not pose a risk to consumers or the environment is central to this framework. Thus, no specific biotechnology regulation system has been created. Rather, the products of biotechnology would be regulated in the same way as products of other technologies. This regulation focused on the characteristics of the product, rather than the way in which the product was produced (Nap 2003; MacKenzie 2000). This product-based assessment is different from the process-based assessment which lies central to EU regulation.

In the United States, there are five agencies which regulate agricultural biotechnology (MacKenzie 2000). The Animal and Plant Health Inspection Service (APHIS) of the US Department of Agriculture (USDA) ensures that the growth of genetically engineered plants does not damage the agricultural environment. The Environmental Protection Agency (EPA) is responsible for assuring the human and

environmental safety of pesticides engineered into plants. The EPA and USDA have responsibility for the oversight of GM plants with anti-pest proteins as well as making sure the environment is not negatively affected by GE crops. The FDA is responsible for determining human food and animal feed safety and wholesomeness of all plant products, including those with genetic modifications.

In 1992, the FDA conducted a scientific review of the Flavr Savr tomato, described earlier (MacKenzie 2000). The FDA considered the source, identity, function and stability of introduced genetic material. The FDA also focused on the compositional and nutritional studies, the safety of the inserted protein, and the environmental safety of the use of the particular gene. The FDA's assessment concluded that the Flavr Savr tomato was substantially equivalent to other tomatoes on the market. In justification, the FDA believed that the new bioengineering techniques were extensions at the molecular level of traditional methods and would be used to achieve the same goals as pursued with traditional breeding. The agency was not aware of any information showing that foods developed by the new engineering techniques present any different or greater safety concern than foods developed by traditional plant breeding. For this reason, the agency does not believe that the method of development of a new plant variety (including the use of new techniques such as recombinant DNA techniques) would require disclosure in labeling for food. In the 1992 policy, the FDA also addressed the labeling of foods derived from new plant varieties, including plants developed by bioengineering. The 1992 policy did not establish special labeling requirements for bioengineered foods as a class of foods. The policy stated that the FDA had no basis for concluding that bioengineered foods differed from other foods in any meaningful or uniform way, or that, as a class, foods

developed by the new techniques presented any different or greater safety concern than foods developed by traditional plant breeding (Mackenzie 2000).

The 1992 regulation guidelines are still used today although the FDA did sharpen its assessments by introducing the premarket notification proposal in January 2001 (Nap 2003). This proposal required that GE food developers submit a scientific and regulatory assessment of the bioengineered food 120 days before the bioengineered food could be marketed. This premarket notification proposal also had the intent of promoting communication between GE product developers and federal regulatory agencies prior to the submission of the required premarket notices (FDA 2005).

In theory, according to the FDA's ruling, essentially any trait could be introduced into virtually any plant without extraneous unwanted genetic material. The FDA stated that these techniques are more precise and that they increase the potential for safe, better-characterized, more predictable foods. Nevertheless, even though the federal policy had deemed previous GMOs as "substantially equivalent" to conventional food products, a new type of GE product must undergo several testing procedures in order to verify that it is in the "GRAS" (generally regarded as safe) category (Garcia 2005). For example, genetically modified herbicide resistant-soy has been accepted and utilized for a substantial period of time whereas a new GE soy seed designed to contain healthier fatty acids has not yet been accepted. This new soy seed would have to undergo further safety testing.

If a company wants to market a GMO, they must first apply to the APHIS (Animal and Plant Health Inspection Service) in the U.S. Department of Agriculture (USDA) for a field test permit. The APHIS reviews permit applications and prepares an Environmental Assessment (EA) in which the potential environmental impacts of

the release are evaluated. Most GMOs developed for agricultural purposes fall within the criteria to be eligible for field testing. If the agency reaches a "Finding Of No Significant Impact" (*FONSI*), a permit is issued. According to USDA regulation, the APHIS permit allows the company to perform a field test in which the specific, regulated organism can be released into the environment (FDA 2005).

Companies may perform field tests on numerous sites in several states within a specified amount of time. Regardless of the particular combination of techniques used, the development of a new plant variety typically requires many site-years (number of sites x number of years of plant testing) of performance trials before introduction into agricultural practice. These range from as few as 10 to 20 site-years for some plants to 75 to 100 site-years for others (some 5 to 10 years). The time of evaluation and the size and number of sites will vary as necessary to confirm performance; to reveal vulnerabilities to pests, diseases or other production hazards; to evaluate the stability of the phenotype; to evaluate the characteristics of the food; to evaluate environmental effects; and to produce the required amount of seed before the new plant variety can be grown commercially by farmers.

In the course of this intensive assessment, individual plants exhibiting undesirable traits are eliminated. Upon collection of sufficient field test data, the company may apply to the APHIS for deregulation of the tested GMO. If the APHIS is satisfied with the quantity and quality of the field testing evidence, then it will deregulate the organism, allowing for the commercialization of that specific crop. Depending on whether or not more complicated or controversial circumstances arise, other agencies such as the FDA and/or EPA will need to be consulted for product market approval.

IV.2.2 GE Food Laws are a Federal Issue

An interview with the Vermont Secretary of Agriculture, Steve Kerr, was conducted at the NOFA (Northeast Organic Farmers Association) conference on February 11, 2006. In this interview, Steve Kerr reinforced the concept that GE food laws are a national issue. He also had mentioned how several people do not realize that GMO regulation and labeling can only be managed by the federal government. According to Kerr:

> *The federal government, both under the constitution and under, just history in this country, has the prerogative and the obligation to regulate these kinds of technologies. It's chosen to approve them; it's chosen to license them; and it's chosen to regulate them.*
>
> *Vermont has very, very little running room. None of the states have much running room. I don't think that everybody understands that, even if we got to some consensus, if it's outside of what the federal government will allow the states to do, it's irrelevant…We can make a big noise and in society that's important thing to do at times. I think it's very important to speak up and speak out…It's also important they understand under the constitution what you can and can't do…So again, this is a federal issue. If the activists want food product labeling, they have to take it to congress.*

According to Kerr, efforts trying to pass food labeling legislation at the Vermont state level are futile. Ideally, Vermont activists would want GE foods to be taken off the market or to at least be labeled. However, these goals are far more difficult to achieve, given the federal authority over the regulation/labeling of food products. This explains why a majority of the legislation being pushed by Vermont activist groups involve farmer liability and seed (not food) labeling laws. For example, the focus of the activist groups is more farmer based rather than consumer based. Instead of trying to eliminate GE foods from the market or trying to get food labeling laws passed, Vermont activist groups are initially focusing their efforts on state legislation that protects farmers' rights to plant conventional crops without being harassed or pressured by industry to use GE seeds.

IV.3 GE-Free Movement at the Vermont Level

Although genetically engineered foods had been approved by the Food and Drug Administration and are regulated on a national level, it is possible for states to increase state-wide regulation on GMOs. Legislation such as the Farmer Protection Act can be passed within the state of Vermont. The impetus for increased regulation stems from grassroots movements. Our research indicates that activists groups are generally motivated by socio-economic factors; a chief concern voiced by activists is the threat that GE technology poses to the organic farming community. Other sources of the GE-movement may stem from: ideological reasoning, organic philosophy, concern for the environment and personal health issues.

These concerns have been addressed by attempts to pass legislation such as food and seed labeling laws. However, most of the activist groups and individual activists are concerned with farmer's rights. This produced an unexpected shift in the study – we had expected the GE-free movement to be generated mostly by consumers with concerns over issues such as the labeling of GE food. Initially, we were trying to characterize consumer groups as being the leaders of this movement. However, it seems as though the majority of the movement stems from organic farmers. When asked to make generalizations about the people involved in the movement, Steve Kerr responded;

> *When we look at what are called internal polls, Vermonters don't show a lot of interest in the GE-free movement. There is a group of people who care passionately on both sides of the issue, but the average Vermonter hasn't shown a great deal of interest. There's a very dedicated band of activists. And they tend to be organic farmers*

IV.3.1 Organic Farming

The organic farmers are concerned about the present and future detrimental economic impact of biotechnology on organic farming. Even though Vermont is a

relatively small agricultural state compared to the rest of the country, its organic agricultural business, particularly dairy, is very significant. Although they are not organic establishments, two of the largest food producers in the state, Cabot Creamery and Ben & Jerry's Homemade Inc., are dairy producers, both of which use rBGH-free milk products (Whole Foods 2006). Since many of the organic farms are small and distal from each other, organizations such as NOFA and Rural Vermont are instrumental in uniting farmers together into a collaborative organic community.

A great concern amongst organic farmers is the issue of contamination from GE pollen. Since Vermont has a distribution of organic and conventional farms, it is very possible for GE seeds and pollen to pollute neighboring organic farms. This situation is hazardous for organic farmers because they could potentially "loose" their entire crop because it would no longer be accepted as organic. In addition to economic concerns, the organic community views GMOs as a threat to organic philosophy, organic practices and sustainability (USDA 2006).

IV.3.2 Consumer Impact on Movement

The consumer reaction is possibly the most important dynamic of the GE free movement at the national level. The consumer perspective of GE foods is crucial to whether these products will continue to be sold in the country because if there is no willingness to buy a product, then corporations will not market them. However, while many Vermont organic farmers share an overwhelming concern for GMOs, many consumers fluctuate in their range of awareness, acceptance and opposition to these GE foods. A reasonable question to ask is, "Does the average Vermont consumer even notice the movement against GE food, let alone react to GE products in any specific way?" The truth seems to be that numerous consumers are completely

unaware of the issue of genetically altered foods and naturally, have faith in the federal government's decisions in regulating their food supply. Some activists believe that many people who are aware of the issue remain inactive for various reasons; people would rather invest their time and efforts into something with higher interest to them. Kate Corrigan, the founder of the local Addison County GE-Free group, expressed her concern over the apathy of the general public when she said:

> *When I tell my friends, I'm only 24, and they are outraged and they can't believe how wrong it is. They totally agree with me and yet, they don't do anything about it. I think that is because they are so busy making money and watching movies that they just don't really don't get active. I guess most of America is that way which is why it is really distressing.*

The underlying principles of the FDA policy have not changed since the early 1990's; since then, numerous consumers have continued to buy GE foods.

A complication for consumers is the ambiguous distinction between traditional foods and GE foods. It is difficult for the average consumer to decipher which foods do or do not contain GE ingredients. Therefore, consumers are unaware of what they are actually eating which leaves nutritionally conscious people in a tough position. Furthermore, the absence of labeling contributes to the ignorance of many consumers who do not even know that GE contents may be in their foods. Many believe that labeling foods would bring about an awareness that the general public does not currently have.

However, compared to most other states, the average Vermont consumer seems to have a heightened awareness of GE foods because of the current debate in the area. Fortunately, there does exist options for those people who know about GE foods and choose to avoid them. There are many resources such as the Brattleboro Food Co-Op and Hunger Mountain Food Co-Op that choose to market GE free foods to consumers providing the consumers with the ultimate final say. In addition, stores

such as Whole Foods Market label all of their products that do not contain GMOs to minimize confusion (USDA 2006).

Many Vermont consumers who oppose GE foods are not necessarily involved in an anti-GE organization. Their main concern involves health issues caused by ingesting GE ingredients; thereby these consumers' highest demand is mandatory food labeling for GE products. Although the major consensus among concerned consumers is the fear of what GE foods may do to our health, degrees of passion on the matter vary. Karen Delaney, a concerned consumer had a radical opposition to these GMOs:

> *I would like to see GMOs be gone from the state in its entirety, never mind this little separation thing. I would like to see clear labeling …potentially something allowing us to make an informed choice.*

Jennifer Granover, a Vermont marketer, opposes GE but acknowledges her lack of knowledge on the issue and is consequently not ardently against it. When asked about her general view on GE, she responded:

> *I need to have more information. I'm a little bit uncomfortable with it, but I don't know enough.*

There are, however, consumers who are open-minded to the possibility that these GMOs may be advantageous in the future. A flower farmer, Nicole Degada, said:

> *But at the same time, if you can not use pesticides and change something chemically in the plant it could be a lot better, the planet in a whole.*

IV.3.3 Organic Foods: An Option for the Concerned Consumer

Without an investigation or research, the only way to tell for sure if a product is GE free is to buy organic. Organic foods do not contain any pesticides, antibiotics, chemicals or processed contents; therefore an organic label guarantees that a product is GE-free whereas a GE-free product is not necessarily organic. Technically a food is

organic according to the USDA when it has at least 95% organic ingredients. No such label is required or produced for products that are GE free (USDA 2006).

The organic buyers in the state of Vermont are very passionate about their stance. A strong overlap of consumers who oppose GE and organic consumers is conspicuous. While some consumers have turned to organic as a result of GE foods, others have been proponents of organic agriculture prior to the introduction of GMOs into our food system. In the latter case, GE foods have only strengthened their commitment to organic agriculture. Many organic buyers feel that through their support of organic and GE free farming, their future will be much safer. At the NOFA winter conference, Todd Walker said:

> *Certainly it made a big difference to me when I watched our suppliers with whole foods or co-ops. We've been watching very closely for vendors who declare GMO free food. We absolutely see the dramatic dire threat to the rural and just the structure of our children's DNA.*

Other consumers of organic take on a more philosophical approach. Annie McCleary, an herbalist, said:

> *There are a lot of issues the government isn't paying attention to. Mother earth is paying attention. Mother earth will take care of what we need to have taken care of. That means change anything for the planet…My philosophy is the more we focus on the positive, the more the positive will happen…I just really honor all the people here at the conference who are organically growing food…That's the basis of our health and our wellness. Taking care of our food is taking care of ourselves.*

Even if a buyer is not a farmer, the purchase of organic foods and local foods is very common throughout the state. However, at times it is difficult to completely avoid inorganic foods. In these instances, organic buyers settle for foods as long as they are GE-free. Many of the organic consumers as well as organic farmers participate in co-op's that sell only GE-free food. These buyers in Vermont also tend to strongly support local farms (USDA 2006).

IV.3.4 The Beginning of Vermont's GE-Free Social Movement

The anti-GE movement in Vermont arose from threats posed to Vermont's small farm economy in the early 1980's. Rising costs and decreasing prices attributed to the overproduction of milk contributed to the economic difficulties experienced by Vermont's dairy farmers. In addition, a hike in property taxes exacerbated farmers' financial troubles.

In 1985, farmers and environmentalists became concerned that the release of a GE-growth hormone for dairy cows would be detrimental to Vermont's small farm economy. The farmers feared that the use of recombinant Bovine Growth Hormone (rBGH) would hinder their attempts to cope with the economic crises. The general perception among the dairy industry was that the use of rBGH would assist the overproduction of milk in the future thus promoting the decline of dairy market prices.

In addition to the onset of genetically engineered agricultural products in the 1980s, the introduction of the rBGH to Vermont agriculture ignited the formation of numerous anti-GE activist groups. Activists from the Institute for Social Ecology, Rural Vermont, the Progressive Party and the Burlington Greens helped raise public awareness about recombinant Bovine Growth Hormone (rBGH).

The synergy of these various organizations led to the beginning of a relatively successful anti-GE movement in Vermont. The Vermont effort played a significant role in delaying the approval for the commercial use of Monsanto's rBGH in Vermont by several years. Moreover, this movement has made some significant strides in combating GMOs. In March of 2002, residents in twenty-eight Vermont towns voted for the labeling of genetically engineered (GE) foods and a moratorium on GE crops

at their annual town meetings. In March of 2003, an additional thirty-seven towns voted against GE food and crops. There are currently eighty-three towns in Vermont that have passed resolutions against GMOs (VPIRG 2003). However, the enforceability of moratoriums in certain regions of Vermont is questionable.

IV.3.5 Coexistence Between Organic and GE Crops

Legislators such as Steve Kerr (Secretary of Agriculture, Vermont) advocate the concept of co-existence in which both conventional and organic farming can successfully flourish together in rural areas of Vermont. Underlying the notion of coexistence is the concept that there is a tolerance to market a food as "organic" when, in reality, it possesses a sufficient degree of GE contamination. For example, the USDA allows a product to be marketed as "organic" if it contains up to 95% organic ingredients. By definition, the other 5% may be inorganic which may include any quantity of genetically engineered contents. In effect, Steve Kerr argues that organic farmers are needlessly creating the GE "war". He argues that organic farmers in Vermont have a zero-tolerance for GE foods.

> *If you accept the notion that zero-tolerance is achievable or even desirable, then they're right. But, it's not achievable I don't think it's necessary, therefore I think it's a false, false standard. And it's created this war, needlessly. Yes, we can co-exist.*

This view is shared by a number of organic farmers and organic seed vendors who realize that GE foods may be a permanent player in our food system. Rather than trying to ban GE foods, some Vermonters believe efforts should be invested into learning how to co-exist with GMOs while still preserving organic culture. For example, Tom Sterns, an organic seed distributor said:

> *So my involvement has been not so much with those organizations working for a complete moratorium but with those that have been working to figure out how best to figure out what to do now that it's (GMOs) here….I think in a lot of cases the more extreme activists organizations have pushed so hard that it's*

> *pushed the conversation off the table and pushed people away from wanting to discuss it.*

Opponents of the idea of coexistence believe this concept is part of the industry's strategy to shift the burden of protection against GMO contamination to farmers who choose to practice GE-free agriculture. In addition, the biotech industry supports the idea of coexistence because it also allows them to try to take advantage of farmers who choose not to purchase GE seeds (VPIRG 2003). An example, to be described, of how co-existence can be detrimental to organic and traditional farmers had occurred in Canada several years ago. Anti-GE activists and farmers are aware that if co-existence is implemented, then there is no reason why a similar incident could not occur in Vermont.

IV.3.6 Federal ruling: Monsanto vs. Schmeiser

Monsanto's expanding power over the agricultural market was further strengthened after the Canadian Supreme Court's decision upheld its rights to protect its patented GE seeds. In 1998, Monsanto sued Canadian canola farmer, Percy Schmeiser, for planting the company's herbicide resistant canola seed without paying the company licensing fee of $15 an acre. Schmeiser argued how he has been harvesting and replanting his own seeds for fifty years and was totally unaware that the Monsanto genes were in some of his crops. He suggested the possibility of the Monsanto seeds blowing off of a passing truck and onto his fields (Flavelle 2004).

By only a 5-4 vote, the Supreme Court ruled that Percy Schmeiser infringed upon Monsanto's rights when he planted the company's herbicide resistant canola seeds without the company's permission. Therefore, the ruling was a victory for the biotech industry because it was reinforced that a patent on a gene gives a company control over the use of the entire plant. However, Schmeiser was relieved from paying

Monsanto for the profits he earned over his crops because Schmeiser never sprayed his crops with Roundup herbicide so he did not benefit from the Monsanto gene's properties. In the future, Monsanto does have the right to claim financial damages when farmers knowingly use its GE seeds without paying the licensing fee (Flavelle 2004).

Although happy that his financial burdens were relieved, Schmeiser believed this was a huge setback for farmers. "The National Farmers Union said it violates the long-standing rights of farmers to harvest and develop their own seeds and effectively hands control of Canada's farms to giant multinationals" (Flavelle 2004). According to Pat Venditti, a spokesperson for Greenpeace Canada, "the court has held that Monsanto can continue polluting farmers' fields and keep menacing them with costly lawsuits" (Flavelle 2004).

Another judicial loss to Monsanto occurred afterward in the United States. A group led by Jeremy Rifkin and the National Family Farm Coalition filed a suit against Monsanto in 1999 saying the company had illegally introduced biotech crops. In 2003, a federal judge dismissed these claims and denied the attempt of the plaintiffs to file for a class-action suit for damages. On March 7, 2005, the 8th U.S. Circuit Court of Appeals in St. Louis upheld the lower court's ruling (Stroud 2005).

IV.3.7 Vermont State Government Legislation

According to State Representative, Dexter Randall, the Vermont State Government is known for its welcoming and open atmosphere. Groups such as Rural Vermont have organized marches and orated speeches in front of the statehouse. In the past, activists have literally sat down on the House floor when there was a particular bill of interest being discussed so that they could support the legislators of

the House who were working on their behalf. Randall commented on how the accessibility and open-mindedness of the Vermont government is a contributing factor as to why Vermont is a leading state in the movement against GE foods:

> *We are very fortunate here in Vermont that we have the type of legislature that just opens the doors; the doors open and just sit us in the legislature and we're very, very fortunate for that. That's one of the reasons why we can do things that we can. Vermont is a very small state and our government is fairly open to the people.*

The voices of the people, namely the GE-free activists, have added incentive to political leaders to propose and legalize GE related bills. In addition to action taken by local municipalities in the form of moratoriums on GE-seeds in Vermont, statewide legislation has been implemented. A GMO labeling law was recently signed by Governor Douglas in April, 2004 which requires that products containing seeds that are genetically altered or engineered are to be labeled as such. Furthermore, the bill requires that seed manufacturers must annually report their total sales in the state to the Secretary of Agriculture (Allen 2004).

Currently, the grassroots movement in Vermont is in the process of establishing legal protection for organic farmers under the Farmer Protection Act. Specifically, the Farmer Protection Act involves placing liability on the GE seed distributor rather than the farmer if either the products are ineffectual or if their farm is polluted with GE substances from a neighboring field. On January 3, 2006 Vermont's House of Representatives Tuesday rejected a bill that would have held farmers cultivating genetically engineered crops responsible for any environmental contamination resulting from the spread of the crop (Sneyd 2006). Although this bill rejected the strict liability proposal, a bill was adopted that would require seed manufacturers to face Vermont courts when there are disputes about the product drifting on the wind into organic crops and contaminating them. The bill is currently

in a conference committee between the Senate and the House. Proponents of the bill are hopeful that the bill will emerges and that this legislation will result in strict liability for farmers of GE crops (Abels 2006). As representative David Zuckerman stated

> *I think people have really put their energy in getting the GMO liability bill passed this year and into law this year and you know we're 90 percent of the way there. We passed it in the Senate, we almost passed it in the House*.

If a bill such as the strict liability Farmer Protection Act were to be passed in Vermont, this would pose a serious threat for biotech moguls such as Monsanto. Because cross-contamination of GE seed depreciates the value of organic foods, organic farmers would be able to sue biotech corporations for their loss of income. This would potentially result in millions of dollars of losses to the biotech industry.

Arguably, the strict liability act eliminates the need for moratoriums on GE-seed in Vermont: if the Farmer Protection Act were to go through in the House, the profitability of selling GE seeds in Vermont would greatly diminish due to costs associated with law suits initiated by organic farmers, and potentially others harmed by cross-contamination. As Dexter Randall, Vermont representative, stated:

> *I think that if we pass a good strong GMO liability bill so that it made Monsanto or Dow or the manufacturers of the seed liable for any problems for the seed so farmers could recover damages fairly and reasonably, I think that there is no such a thing as coexistence … organic agriculture and genetic engineering cannot coexist in the same environment without a slip up somewhere.*

Thus, if this legislation was passed, co-existence may be a viable solution to the current GE-free movement in Vermont. However, the biotech industry may no longer have an interest in selling products in Vermont.

Data suggests that it may be in Vermont's interest to support organic farmers. The organic sector is projected to grow substantially. Namely, in 2010 the market is forecast to have a value of $35.1 billion, an increase of 108% since 2005. If

legislation to protect organic crops is not passed, the future of organic agricultural would be waning and unprofitable. In this case, the organic farmers might have to resort to government subsidies as compensation for their crop damages.

The USDA currently subsidizes mainly conventional farmers. In 2001, the USDA allotted $30 billion to 10% of the nations farms. In 2001, USDA gave less than $5 million dollars to organic agriculture (Cummins 2001). However, the sustainability of subsidizing organic farmers in Vermont is questionable: if no steps are taken to financially protect organic farmers against damage due to cross-contamination of GE crops, the market-value of these products will eventually decrease. Thus, subsidizing organic farmers may not provide a long-term solution to the economic losses suffered by the organic industry.

IV.3.8 Supporters of GE Agriculture in Vermont

As Secretary Kerr had stated at the NOFA conference, there are plenty of farmers in Vermont who support and utilize GE practices. However, it is a challenge to equally portray both perspectives of the Vermont GE debate because the public reaction and activism of pro-GE farmers have been minimal. Fortunately, we were able to hear the perspective of a dairy farmer who uses the rBGH hormone on his cattle. He admits that although there are plenty of GE advocates, little effort has been dedicated to ensure that these practices will continue to be permitted. This pro-GE dairy farmer, Eric Clifford, anticipates that the disparity in the activism and involvement of the GE-free activist groups compared to the pro-GE farmers is going to be a problem:

> *Conventional farmers, whether they're pro-GE or not, don't voice their opinion in Montpelier enough. When you've got Rural Vermont and VPERG and such that are there lobbying everyday. To me that's an issue, I mean I'm a dairy farmer and it's the dairy farmers fault because as a group, we're not up there lobbying. It's going to be a tough road for sure.*

Many conventional dairy farmers who use rBGH believe that taking advantage of GE techniques is the only way they can adequately compete with dairy farms across the country. If other dairy industries are using this technology and are benefiting from it, then these Vermont farmers believe that it is only fair for them to be allowed to use it. Eric Clifford said:

> *I'm a dairy farmer and 95 percent of all the milk that is produced in Vermont goes out of the state. And the amount of commerce that's in and out, you draw lines on the map. What you're basically doing at that point (*prohibiting GE*) is putting me at an economic disadvantage, because, I mean the technology is there and I can't use it but the neighbors lets say 27, 28 miles to the west in the state of New York can and we are shipping our milk to exactly the same market, its going to the same consumer. If you want to put me out of business that's what you're doing*.

According to Clifford, some pro-GE farmers who feel passionately about this issue would consider leaving Vermont if their right to practice GE techniques is taken away.

> *You know there's a lot of farmers here that would say that* (a moratorium on GE practices) *would be the straw that broke the camel's back. You know that's it, pack up we're moving to Syracuse. We don't need this anymore. Land around here has incredible development potential right now and I belong to a discussion group, a dairy farm discussion group, it represents a lot of farms a lot of cows. It's one of the things that we talk about a lot. If they don't want us to use GE here, let's just move*.

Furthermore, it was elucidated that farmers' support of GE agriculture is motivated by economic concerns. Clifford's income depends on the dairy production of his 498 acre farm. He acknowledges the competitiveness of the dairy industry and reminds us just how difficult it is to make a living as a farmer:

> *When Vermont produces 2 percent of the milk in the country, today if they took Vermont out of production it wouldn't even erase the surplus that there is right now.*
>
> *One of the things that kind of hurts me is that we kind of get slammed a lot for using rBST or using antibiotics…but the reality is we don't want to buy anything unless it's going to make us money. And the last thing that we want*

> *to do is buy more stuff than what we need because there's no margin here anymore anyways as far as making a profit.*
>
> *It bugs me when they say you're buying all those pesticides and you're buying all those antibiotics. Well the reality is we're buying as little of that as we can. We're just looking at the bottom line*

Conventional farmers who employ GE practices can justifiably argue that GE can enhance Vermont's economy and market-share in the dairy industry. Therefore, in addition to the biotech industry and Federal government, the support of GE practices by farmers who benefit from such a technology will serve as a deterrent to the advancement of the GE-free movement in Vermont.

IV.4 Activist Groups

There is no single attribute that can uniformly characterize the Vermont GE-free activists except for their shared opposition to GE food products. Activists against agricultural GE range widely in profession, age, socioeconomic status, and level of involvement in the GE-free movement. Some opponents to GE are members of the radical Rural Vermont activist group while others may be involved in organic groups such as NOFA, which selectively focuses their efforts on the GE-free movement.

IV.4.1 Rural Vermont: A Leading Activist Group Against GE

Rural Vermont is well known for being a major leader against genetic engineering. They are not a consumer based group, but a farmer's organization which was founded on and led by the farmer's perspective. Rural Vermont tries to employ a direct democracy such that the people who are affected by the decisions are the ones who set the policy and make them. They have a regular board of members along with a secretary, treasurer and occasionally a chair and co-chair. The number of board of members fluctuates between seven and fifteen and these positions are voted on annually at an election meeting.

Amy Shollenberger, a leader in this group, said that Rural Vermont's major goal is passing the Farmer Protection Act in order to establish liability to the GE manufacturer if contamination were to take place. Basically if there are problems with GE seeds, the manufacturer will be responsible for any economic reparations. Shollenberger, although popular for her radical involvement against GMOs, was realistic about her expectations and goals. She seemed to recognize the difficulty and impracticality of trying to eliminate GMOs from Vermont. In an interview conducted at the NOFA winter conference, Shollenberger said:

> *Well, I think it's important to clarify that we, GE-free Vermont, in my opinion, no longer actually exists. Rural Vermont is no longer actively seeking a moratorium on GE seeds. We are working on strict liability.*
>
> *I'm not sure it's accurate to say we are asking for more regulation – we are asking for the state to clarify responsibility of the manufacturers and to level the playing field for farmers that are currently accepting all the risk for the patented products that they don't have any control over.*
>
> *I think it's valid to say that every farmer we are working with has basically accepted that GMOs are here and that we sort of need to take steps to deal with the fact that they are here.*

Evidently, Shollenberger accepts the fact that co-existence is not merely an option but a reality. Rather than wasting efforts trying to eliminate GE products, she believes it is in the farmer's best interests to develop solutions such that it is possible to be able to co-exist with GE seeds and crops. The Farmer Protection Act is an example of that.

Aside from passing the Farmer Protection Act to confirm liability to the biotech industry, other victories of Rural Vermont can be measured by the degree of education, involvement and conversation that has taken place on this issue in not only Rural Vermont, but within the state. According to Shollenberger, a major success would be if the farmers have established major connections and communication with each other. Additional major accomplishments would be: updating farmers and citizens in Vermont about this issue, educating them on the legislative process and

encouraging farmers to take risks, stand up for themselves and actively participate in public discussions and hearings.

In order to achieve these goals, Rural Vermont holds information sessions, seminars, group meetings and table sittings at different events to spread information to the farmers and consumers throughout Vermont. Members make phone calls to their legislators, write letters to the editors of newspapers, lobby at the state house and attend hearings at the state house. They organize workshops to teach people about the legislative process and implications of potential bills and proposals. Furthermore, Rural Vermont invests time in working with local groups with the objective of connecting smaller groups to each other and encouraging them to develop leadership and strategies within their community. In the past, Rural Vermont has also employed direct action techniques such as rallies, banner droppings, marches and protests but they prefer to utilize those strategies as last resorts.

Rural Vermont is fortunate enough to benefit from the support of legislators who share their aspirations (Shollenberger 2006). Dave Zuckerman, a Progressive Representative in the Vermont government, has been a member of Rural Vermont for almost four years. According to Zuckerman:

> *I've definitely been a fairly key legislator in respect to the discussion on genetic engineering in general…My role has been pretty significant…I would say I have been one of the leaders if not the most upfront upon this issue.*
>
> *I don't hold any official position in the group* (Rural Vermont)*, I'm just a member. But I'm certainly active in the issues that they work on due to my role as a politician.*

Additional political support is influenced by state representative, Dexter Randall. He has been involved with Rural Vermont for many years and has been in public office for almost two years. Randall was the chair of Rural Vermont for nine years until he

had to step down his position once he was elected to the state legislature. Dexter Randall stated:

> *I am now on the board; I am not as active as I used to be. I follow what they're* (Rural Vermont) *doing and if they come to me for advice or where they are going or anything, I work with them.*

Clearly Randall's previous involvement and interest in Rural Vermont definitely contributes to this group's leading status in the fight against GMOs in Vermont. In addition to Zuckerman's and Randall's roles, this organization benefits from its numerous sources of funding. According to Amy Shollenberger, Rural Vermont does not accept state, government or corporate money. Rather, the group's funding comes from membership dues, large donations, and foundation support.

IV.4.2 Genetic Engineering Action Group (GEAG)

Another popular activist group in Vermont is the Genetic Engineering Action Group (GEAG). This group was founded by five people who were adamantly concerned over the infiltration of GMOs into their food and agriculture. Stationed in Brattleboro Vermont, this group has been in existence for five years and is now led by a core group of ten workers. According to the leader of the organization, Jim Moulton:

> *GEAG's mission is to halt the release of genetically engineered organisms into the environment and food supply until there is conclusive independent evidence that they will not harm our health, the environment or Vermont agriculture.*

GEAG has no paying staff and no membership fees. They encourage people to take a direct path in following the activists of the group, hence the word "action" in their organization's title. The activists involved with this group range from professionals, blue-collar workers, housewives and college students.

Film showings, speaker tours, and public meetings have established relationships with other groups including Rural Vermont, VPIRG, Institute for Social

Ecology and NOFA. As one of GEAG's goals is to encourage smaller communities to collectively play an active role in this issue, GEAG has also helped establish smaller anti-GE groups such as Upper Valley GEAG, Lamoille County SPROUTS, Committee for Study of GE Food and Food Choices (citizens' group in Rutland), and the Addison County GE Free Food Group.

GEAG also devotes efforts into preserving Vermont natural lands and the environment. When asked to quantify their successes, Moulton responded with the number of acres preserved, miles of trails, increase in recycling rates in town, toxic sites cleaned up, green spaces/community gardens created, and amount of money raised.

However, GEAG has definitely concentrated its resources and activity on GE issues. According to Moulton,

> *GEAG initiated the 'Town to Town Campaign' 4 years ago that resulted in 82 towns having passed anti-GMO resolutions in Vermont. In 2004 GEAG worked on passing the 'Seed Labeling' law at the statehouse. Currently we are working to pass the 'Farmer Protection Act' with strict liability language. The growth of the movement across the state, demonstrated by the emergence of new groups, has been a huge success.*

GEAG, along with Rural Vermont, are among the leading establishments against GMOs in the state. Jim Moulton believes that Vermont presently serves as a model for other states and communities to mobilize against GE agriculture.

IV.4.3 The Institute of Social Ecology

The Institute of Social Ecology is an educational establishment dedicated to the erudition of the ecosystem with the aspiration of sustaining and protecting our environment. Brian Tokar, a popular leader of the GE-free movement had started working as a professor at the Institute since 1988 and has been involved with GE issues since the early 1980's. According to Tokar, the Institute is a staff-based organization which is funded by student tuitions for the educational program and

donations from supporting foundations. The staff at the biotechnology department makes decisions collectively.

Tokar believes education is the fundamental tool in achieving any measure of success. Tokar has written articles in a number of different literatures, including the Z-magazine, with a goal of expanding the audience awareness of these issues. With the underlying achievement of education and awareness, Tokar noted the various aspects of success for this organization:

> *Probably the most important measure of success is how visible these issues are in our communities and how well-informed people are because we believe that the more people know about genetic engineering and its consequences the more people are skeptical of it to oppose it. The main criteria of success is having a well-educated public where the issues are being discussed and are visible in the press and are visible in other public forums.*
>
> *A secondary measure of success has been the number of towns on record and we are up to 83 in Vermont and 97 in New England wide. A third measure of success is influence in policy and there I think the successes have been modest.*

The Institute of Social Ecology uses the Vermont town meetings that happen every year to help spread awareness of GE foods. For a town meeting campaign, the workers normally start preparing in August so that they can present resolutions on genetic engineering issues to town meetings that are held in March. They inform people about the biotech industry's agenda and GE products. These meetings are ideal for informing the public because it is where Vermont citizens go to meet and discuss their town's agenda for the upcoming year. Tokar also believes these meeting are influential in getting legislators interested in GE matters.

IV.4.4 Addison County GE FREE Food Group: A Local Organization

As previously mentioned, smaller anti-GE groups have formed as a result of the growing awareness across the state. One example is the Addison County GE FREE food group formed in the spring of 2004 by Kate Corrigan, who is now a

twenty-four year old graphics designer and marketing assistant from Middlebury, Vermont. Corrigan is extremely passionate about this issue and is concerned about the health and safety of GE foods that are invading our food system.

This group is an example of how small groups may not be very successful in having any large-scale impact on the movement. However, it does serve as another educational and awareness tool. At the first meeting, only one other person attended; only a maximum of ten people have attended a meeting. Corrigan regretfully admitted the group had dissolved after her trip out of the country. Along with scarce personnel support, Corrigan had no major sources of funding. She used the library as a meeting place because that was free but other expenses come out of her own pocket.

When the group was still active, she held four events at the public library to show movies and initiate discussions about the GE debate. Currently, Corrigan continues her involvement with this movement. She has handed out fliers at food co-ops, wrote letters to newspaper editors and plans on organizing film showings at high schools because she believes younger people will be more open-minded to the issue. Even though she feels these GE foods can be detrimental to our health, she pragmatically believes that the passing of the Farmer Protection Act will be the first step to success.

IV.4.5 Northeast Organic Farmers Association (NOFA)

The Northeast Organic Farmer Association (NOFA) is a well established organization whose resources and energies are invested into improving the lifestyles of organic farmers. Founded about 25 years ago, this group began as a very small organization that has blossomed into a reputable establishment which strives to benefit the organic community. Similar to the other activist groups, they believe an indication of success would be getting the Farmer Protection Act passed because it

would certainly protect the financial interests and non-GE practices of organic farmers.

NOFA spreads awareness and information through writing emails and distributing literature to their members with the hopes of educating and updating the public on current GE legislation, problems and breakthroughs. They also organize demonstrations, encourage calls and letters to legislators, and hold forums open to public discussions. Furthermore, NOFA representatives have lobbied in the Vermont state government in Montpelier in order to promote or oppose certain bills. NOFA is fortunate enough to have a high level of active membership. They receive their funding from membership dues, grants from government agricultural foundations and profits from their annual winter conference. Overall, NOFA is very active in educating Vermonters and recognizes the importance of providing opportunities for concerned citizens, namely farmers, to discuss agricultural issues.

A majority of the NOFA members are adamantly opposed to GE because it threatens their organic lifestyle. There does exist a sense of urgency in anti-GE objectives because once crop contamination and circulation of GE contents are out in the fields of Vermont, it is too late to reverse the damages. Interestingly Steve Kerr, who was originally going to be the keynote speaker at the winter conference, was replaced because NOFA members did not want to give him the privilege of speaking. Many organic proponents believe Kerr is not on their side and did not want to provide him with the opportunity to voice his opinions.

Although there exists an anti-GE consensus among NOFA members, there are many other concerns within this organization. At the winter conference which took place on February 11, 2006, the focus of this event was certainly not on GE. The main speaker spoke about the depletion of natural fossil fuels and the permanent

global fuel crisis. There were a total of thirty-four different workshop options, none of which had a focus on GE food products in Vermont. Many of these workshops centered around the theme of energy conservation, various organic methodologies and maintaining healthy livestock; specifically, a few of these workshops were titled "Permaculture and Planning for a Positive Post-Petroleum Future", "Incredible Vegetables From Self-Watering Containers", and "Managing Your Farm Using a Systems Approach."

For example, Tom Sterns, an active member of NOFA admits that the GE-free debate is not his priority:

> *I've got a lot of other things more important than fighting GMOs coming into the state.*

Apparently, NOFA has many other subjects involving organic culture that they must address in addition to GE concerns.

IV.4.6 Organic Trade Association (OTA)

The Organic Trade Association (OTA) is another organic-based organization which selectively employs efforts into combating GE foods. The OTA is an international trade organization with a chapter recently formed in Vermont. Patricia Vincent, who holds a position on the Steering Committee for the OTA Organic Copy Council, said the group is highly organized. Leadership used to be organized into councils but they are moving towards forming task forces in which people interested in a particular problem will form a task force and will work on that task until the project is completed.

The OTA has a lobby on Capital Hill and they organize a day when members explain organics to government officials to help educate the government on organic culture. One of the OTA's victories was getting the Organic Foods Production

Act passed in 2002. Funding for this organization stems from private funds, membership dues, and profits made from organic trade shows known as the Expo West and Expo East. Similar to NOFA, a majority of this group's aspirations involves the preservation and sustainability of organic agriculture. Policy specifically designed to fight GMOs is only part of the OTA's mission.

IV.4.7 Education and Public Awareness

A major theme in virtually all of the activist groups is the importance of education and awareness. Brian Tokar, of the Institute for Social Ecology, believes that the most effective strategy to help the efforts of the GE-free movement is,

> *Grassroots education. Getting people involved in public discussions and public decision making at the community level… There have been panel discussions, film showings; there are a number of good films on the genetic engineering issue that have been shown all over Vermont.*

Moreover, when questioned about the most effective tactics the GE-free community uses to accomplish their objectives, many responses described the significance of spreading information, knowledge and awareness to others. Since these activist groups cannot compete against the corporations financially, they recognize that their chances of making a difference correlates with the number of people against GE. According to an organic farmer, Rachel Nevitt:

> *You can set up all the laws you want to, but people have got to care about it, and when people care about it, the laws get passed. So, yes the government has a role and should have a role but the people should educate themselves and get involved and demand that the government do something.*

Many activists believe that along with the biotech corporations and the Federal government, it is people's ignorance about biotechnology that hinders the progress of the anti-GE movement.

One example of an educational tool used by many GE-free activists is a popular documentary amongst the anti-GE community titled, “The Future of Food.” This film claims how GE based agriculture is taking over family farms and is threatening the health of the nation. Statements from scientists declare the potential dangers that these untested products have on people’s health including widespread antibiotic resistance and serious allergic reactions. Farmers tell stories of how Monsanto has infringed on their lifestyles and personal rights in their attempts at monopolizing the seed market (Brown 2005).

Garcia acknowledges the fact that her film is one-sided. She believes the “world has heard enough of what corporations have to say for themselves. This is simply a call to action” (Brown 2005). Below are excerpts of an interview between Deborah Koons Garcia and LA Times writer, Corie Brown, about her recent documentary:

Deborah Koons Garcia:

> *I present a position in an advocacy film; I’m not trying to give all sides of the story. This is a big issue. I tried to make a film that makes sense; I built an argument based on facts. Monsanto does control the seed supply in our country. It is the dominant company in genetic engineering. The company is suing farmers to control those genetically engineered seeds. There is no oversight of genetically engineered crops. And the idea that we need genetic engineering to solve world hunger has been disproved.*
>
> *The hard thing about talking about the safety of genetically engineered crops is that these foods haven’t been test. There is an absence of proof that genetically engineered products are or that they aren’t healthy. Until there are some serious studies, we aren’t going to know.*
>
> *The government says the corporations have tested the health safety of the plants. And the corporations say the FDA says they are OK. They are covering for each other…and once this stuff is out there blowing around, we can’t call it back. It will have already contaminated our fields. Meanwhile, there are more people with food allergies.*
>
> *I asked Monsanto for an interview. We told them we were making a film about genetic engineering, and they sent us a CD by the big PR firm for all of the biotech companies. We used it all through the film. To my mind, it is more*

> *telling than to allow the manifestation of the corporation to be some nice guy presenting an image of the corporation as a person. I chose to use what they chose to give me.*
>
> *I hope that people will challenge the genetically engineered food industry's takeover of our food supply, challenge its presence in our food supply, and, then, appreciate family farms. I want them [people] to not make assumptions about their food safety.*

(Brown 2005)

IV.5 Discontent and Disagreement with the Government Policies on GE

GE activists representative of various groups and backgrounds have expressed negativity towards the Federal government. Below is a table of representative quotes taken from several interviews with opponents to GE regarding the federal government's role in monitoring genetic engineering A major theme is discontent with the government's lack of regulation of the biotech industry in testing and monitoring these transgenic products. Other views convey disappointment because GE food products are not required to be labeled differently from conventionally made products.

Table 4: Activist's views on biotechnology

Name	Profession/Activist Group	Quote
Brian Tokar	Institute of Social Ecology/ Rural Vermont	"*The role has been pretty minimal. There is no requirement for GE labeling anywhere in the U.S. The 3 agencies of the federal government that are involved in different aspects of regulating GE products have all been extremely lax in their enforcements."*
Annie Claghorn	Organic dairy farmer	*"I think the government should be much more independent from the biotech industry because I think there's a huge amount of money being made by the biotech industry but at the expense of other prospects of society that haven't really been taken into consideration. I think the government needs to be the one to really stand up and call for more testing of these, when they're actually talking about bioengineering of food*."
Patricia Vincent	Copy product engineer and sensory evaluator at Organic Valley Coffee	"*I believe that even though the United States government says there is no difference between genetically modified foods and organic food or all natural foods, I think that is a lie."*

IV.6 Credibility of Federal Policy is Challenged

Some skeptics of the GE movement believe the national government has overlapping interests with corporations such as Monsanto. The table below includes anti-GE opinions in regards to the relationship between the government and Monsanto. These statements are quoted from members of organic farming groups, a member of a GE-free group and an anti-GE politician in the Vermont government. A recurring belief is that companies, like Monsanto, donate money and fund certain government officials; consequently, this promotes political support for the corporations because key government officials have stakes in the industry's success. Similarly, some believe that corruption exists in the government because government officials who have held positions in a biotech corporation will be inclined to promote legislation in favor of the biotech industry.

Table 5: Activist's perspectives on the role of the government and the biotechnology industry

Name	Profession/Group	Quote
Kate Corrigan	graphics designer and marketing assistant/ Founder of Addison County GE FREE food group	*"I feel that the government is giving a hand with Monsanto. I know on a national level, the secretary of agriculture, she was also on the board of some Monsanto genetic engineering companies and so they're all intertwined."*
Kari Bradley	General Manager of Hunger-Mountain Food Cooperative (Co-op is member of NOFA)	*"To a certain extent I think federal and state governments pose a threat. I think there's a real resistance … from the department of Ag in the state of Vermont, the legislature to a certain extent to support legislation that would promote GE free agriculture."*
Karen Delaney	Food Co-op worker/ Member of Maine Organic Farmers Association	*"I think the government should stop being an advocate for industry. You know, I have a particular personal opinion about some of the major players, some of the major chemical companies. And it just it needs to not the government needs to stop advocating and let the legislature make their own decisions."*

Moreover, in Deborah Koons Garcia's "The Future of Food", an entire piece of the film is dedicated to displaying the names of professionals who have held positions in both the federal government and a biotech industry. Skepticism is only natural since these people's interest in the genetic engineering corporations will carry

over into their agendas when working with the government. Below are the names of the individuals who have worked both in the government and in a biotech company.

Table 6: Recycling of individuals in corporate and government (Garcia, 2004)

Name	Government Position	Biotech Position
Michael Taylor	Deputy Commissioner for Policy in the FDA	Monsanto's Senior Counsel
Linda Fisher	EPA Deputy Administrator	Executive Vice President for Monsanto
Micky Kantor	Secretary of Commerce	Monsanto Board of Directors
Justice Clarence Thomas	Supreme Court Justice	Monsanto Attorney for Regulatory Affairs
Lidia Watrud	EPA official	Biotech Researcher for Monsanto
Anne Veneman	Secretary of Agriculture	Board of Directors for Calgene (later purchased by Monsanto)
Michael Friedman	Acting Commissioner for the FDA	Senior Vice President of Searle, a subsidiary of Monsanto
William Ruckel	Chief Administrator for the EPA	Monsanto Board Member
Donald Rumsfield	Secretary of Defense	President of Searle, subsidiary of Monsanto

IV.7 Victory for Anti-GE Community

Despite the daunting authority and influence that the biotech corporations have over the government, efforts of anti-GE groups have resulted in certain levels of accomplishment. One major example of a GE-activist victory occurred when the limitations of the GE industry were exposed after Monsanto terminated its wheat-project.

In early May of 2004, Monsanto announced its decision to halt its plans to commercialize genetically engineered wheat. A project that once seemed to have a very profitable and successful future was cut off from funding and indefinitely postponed. Monsanto said it would cut most of the $5 million it spent annually to develop the Roundup Ready wheat-product (Gillis 2004).

Monsanto denies the influence of activists on their decision, but asserts that its decision was purely business oriented. Monsanto said it made its decision after "extensive consultation with customers in the wheat industry" (Pollack 2004).

According to their calculations, since their work on Roundup Ready wheat began in 1997, the wheat market had shrunk 25%. Carl Casale, the executive vice president said, “We recognize the business opportunities with Roundup Ready spring wheat are less attractive relative to Monsanto’s other commercial priorities”(Reuters 2004).

Other speculation claims that the GE wheat was pulled from commercialization because of the concerns of farmers that the crop would endanger billions of dollars of exports (Pollack 2004). This time, not only were the expected environmentalists and consumer groups opposed to GE wheat, but farmers were adamantly against it as well. Farmers knew that wheat buyers in Europe and Japan had warned that they would not buy GE wheat from American farmers because they knew there was no market for it (Pollack 2004). A survey conducted by the US Department of Agriculture claimed that only four countries were willing to accept GE wheat – Peru, Sri Lanka, Pakistan, and Yemen (Reuters 2004). The director of biotechnology programs at the Center for Science in the Public Interest says of the subject, “Consumer acceptance and the readiness of the commercial markets are as important as food and environmental safety for biotech crops these days” (Pollack 2004). Moreover, farmers know that it will be almost impossible to keep GE wheat and non-GE wheat seeds separated.

Many believe that GE wheat will be very difficult to market to the public mainly because wheat is directly consumed by people. The major transgenic crops that are commercialized are soybean, canola, corn and cotton. Soybeans and canola are pressed for oils that are used in small quantities in processed food. Most GE corn is used in animal feed and cotton is used for clothing. None of these GE crops have the symbolic significance of wheat which has been a huge component in the human food chain.

According to Greenpeace GE campaigner, Pat Venditti, "This is a victory for the environment, farmers and consumers. Strong Rejection of GE wheat from virtually every corner of the globe once again showed the resistance to GE foods" (Reuters 2004). Similar views were expressed by Joseph Mendelson, legal director of the Center for Food and Safety; when referring to Monsanto's pull of the wheat product he said it was, "a watershed event to have a product rejected in North America because of consumer and farmer desires. It will embolden farmers to say when we see a product we don't want on the market, we can stop it" (Gillis 2004). Furthermore, Nadege Adam of the Council of Canadians was ecstatic over this news. She said,

> *We know Monsanto saw genetically engineered wheat as their cash cow. They were determined to push it ahead. For them to retreat, even before getting a decision from the government, goes to show they knew they were doomed*" (MacAfee, 2004, p.B5).

Monsanto had previously argued that genetically altered wheat could increase yields by between five and fifteen percent (Reuters 2004). They did not rule out reviving the product some day in the future and proposed they may decide to attempt a comeback four to eight years from now (Gillis 2004). For now, the company plans to expand its sales on its widely accepted crops of genetically modified corn, cotton, canola and soybeans. According to Monsanto vice president, Carl Casale,

> *We will continue to monitor the wheat industry's desire for crop improvements, via breeding and biotechnology, to determine if and when it might be practical to move forward with a biotech wheat product* ("Monsanto gives", 2004).

V. Analysis

Genetic engineering is one element of the global transition from industrial capitalism to informational capitalism (Heller 2003). In particular, informational capitalism in the form of biological and electronic technologies has become the basis of knowledge-based economies (Heller 2003). As markets in the United States, Europe and other regions become characterized as knowledge-based economies, it is important for markets to remain competitive. In the United States biotechnology is promoted by the government and biotech industry. However, because of the scientific uncertainties shrouding the use of biotechnology, farmers and consumers in Vermont have approached biotechnology with caution. The activists that we have interviewed have taken on a precautionary stance: they will oppose the use of biotechnology in agriculture until a cost-benefit analysis justifies genetic engineering.

> *(We) think that people have a right to be able to choose … (there should be) labeling of GM seeds or foods that contain GMO ingredients. We also think it's important for things like GMOs that may have ramifications for human health are put on the market, that they be tested on all possible impacts on human health and the environment. That's what we call the precautionary principle. It goes back a long way in science and we do it in varying degrees that are in the pharmaceutical industry.*

Structuring the GE-debate in Vermont are legal issues such as accountability of cross-contamination, the preservation of "green" Vermont and Vermont's organic culture. Based on the results of our academic and empirical research, we have analyzed the characteristics of the GE-free movement in Vermont.

One important issue to address is why the GE-free movement is so prominent in Vermont, but not in other states which rely greatly on agriculture. We hypothesize that because Vermont's farming industry is relatively dairy-oriented, Vermont's economy is less dependent on the biotech industry, enabling Vermont to take a stand

against GMOs. Indeed, there are other states in the United States, such as Nebraska, Minnesota and South Dakota which qualify as states where people associate their identity with the land and farming. However, the GE-free movement in these states has not been able to resist genetic engineering as promoted by the biotechnology industry-government force that is dominating U.S. agriculture. This may be due to the fact that the agricultural industry is heavily crop oriented in these states. For example, South Dakota leads with 79 percent of its corn being a GM variety, followed by Minnesota with 63 percent and Nebraska with 60 percent (Pew 2004). Moreover, these states all produce on the order of millions of acres annually. This stands in sharp contrast to Vermont, which barely produces 100,000 acres annually. Table 1 illustrates this.

Table 7: U.S. and all States Data – Crops (NASS 2006)

Commodity	State	Planted for all purposes
Corn for Grain	Nebraska	8500 thousand acres
Corn for Grain	South Dakota	4400 thousand acres
Corn for Grain	Minnesota	7300 thousand acres

Thus, states such as Nebraska, South Dakota and Minnesota, which are heavily crop oriented are so invested in the biotechnology industry that farmers, consumers and policy makers that live in these states cannot resist genetic engineering as promoted by the biotech industry and the U.S. government. Apparently, the economic stakes in biotechnology prevail over ethical, environmental and health concerns that are prominent in Vermont's dairy economy.

Vermont's relatively small population and geographic size, compared to behemoths such as South Dakota and Minnesota, facilitate interaction among GE-activists from different regions of the state. Also, several of these states are politically and socially conservative compared to the more progressive and liberal sections of

Vermont. Furthermore, the informants in this study often referenced the Vermont government's open atmosphere as "activist friendly".

> *We have in the past few years we've had our policy director get in contact with farmers and interested people and bring them into the statehouse. And sometimes they've done a march. They might march up to the statehouse and have speeches on the statehouse steps and have media there. And on days when there's particular things going on in the statehouse we have people come in, go to committees and actually sit down and lobby in the committee and peacefully they have come in at times and sat on the house floor when there was a particular bill on the house floor just to support the people on the house floor that are working on their behalf.*
>
> *Usually, we are very fortunate here in Vermont that we have the type of legislature that just open the doors the, the doors open and just sit us in the legislature and we're very, very fortunate for that. That's one of the reasons why we can do things that we can. Vermont is a very small state and our government is fairly open to the people.*
>
> *As far as on a national level we used to try to do some work on the national level but it's a harder thing to get funding to do things on the national level. We lobbied against NAFTA, against the GATT agreement, we lobbied against CAFTA and different national issues …. but … we can do a lot more right here in the state of what's really, really affecting us right here in the state rather than trying to go to the national level as much. (Dexter Randall)*

Farmers and activists tend to take a precautionary stance with regards to genetic engineering. Farmers are often wary of cross-contamination and related liability issues. In addition, many farmers and inhabitants of Vermont associate their identity with the land and farming. Vermont's scenery, dairy industry and maple syrup are iconic traits. To this effect, farmers and activists desire to retain this image and preserve "Old Vermont". Furthermore, many of those that we interviewed regarded nature as almost holy. Organic was viewed as a technique to preserve nature's purity – genetic engineering was often deemed a destructive technology:

> *Again it will be as it was. Mother earth will take care. But we will not be allowed to destroy the earth. I know that. The more we do things to support the earth being honored and taken care of and eating more good food. The more we work in <genetic*

> *engineering> the more we work against mother earth. She will take care. She will not let us destroy her. So I have faith (Participant 1).*
>
> *Just talk about and embrace the beauty of organic. We should embrace the way God meant it to happen. It's not about making money, but nourishing the soul and body (Participant 2).*

This is parallel to the "clean and green" image of New Zealand that frames the GE debate there (Elmes 2005). Interestingly, the attempt to preserve organic culture is very similar to the impetus found in New Zealand to preserve natural land by the indigenous Maori people. For example, this is an excerpt from a paper describing the Maori perspective.

> *Genetic modification is seen as interfering in the life force of the affected species and because of this many Maori are against genetic modification. They believe each species should be left untouched, the way nature intended (Momo 2005).*

This perspective of "Old Vermont" was linked to the perception that by isolating Vermonters – for example, by building greenhouses so that consumers could be self-sustaining and purchasing only from local markets – inhabitants of Vermont could be made virtually independent of the outside economy.

> *Most of everything we eat comes from this town. We've put up a ton of food from the garden across the road as well as the stuff we grow (in our greenhouse) … lamb, pork, it all comes from within 10 miles away … now we're growing our food because we know where it comes from and we want to be more self-reliant (Participant 3).*
>
> *Most of my produce I get from local markets. And I also have really thought about particularly milk for instance – I've started drinking raw milk and trying to get more un-pasteurized cheese products and that sort of thing. Both for health reasons and also for political reasons I think it is better for the local economy to buy directly from local farmers (Participant 4).*

As a tool to create dialogue between the various stakeholder groups, education is underscored as key to informing Vermont communities. Educating the community about genetic engineering is important to the advancement of the GE-free

movement from the activists' perspectives. To them, people's awareness is important. To illustrate this point, when asked what one of the key informant's measure of success was, this was her response:

> *… the level of education and involvement and conversation that has happened on this issue in and of itself is a success. Not for Rural Vermont, but just for the state. I think that the farmers that have made connections with each other, that have learned how to participate in the legislative process and those that have taken some personal risks to speak out and to see what that's like. I think all of those things are success. Because that's what democracy is about – people getting engaged, people talking to each other, people taking responsibility for what is happening around them. And to us, that is the ultimate success. (Amy Shollenberger)*

This stance is very similar to that of the Maori people in New Zealand. For them, educating the community is equally important to the advancement of anti-GE movement (Momo 2005).

> *I think that the development in the systems public law was a major advance as this protocol society, and I think that we haven't taken this concept and applied it to Maori times. So what we want to know is why it is risky and what is safe, and GM is part of the risk and safety debate and there is some things in which will help us survive and some things that which will threaten us. We need to be able to analyze it but confront it, than say we won't have anything to do with it, or yeah we will embrace it completely. So it's a question of what is its survival strategy that's going to be most useful in this new world what we're in which is not the natural word right or wrong its how the world works and we need to learn how to cope with it* (Momo 2005).

Like many other social movements, the development of a public anti-GE consensus was a gradual and progressive process. There was no solitary event in Vermont that caused a collaborative rejection to genetically engineered agriculture. Rather, it was the accumulation of international, nationwide and local anti-GE associated events that raised a societal awareness which then initiated the establishment of several activist groups.

V. Analysis

Some of the most active players in the GE-free social movement were aware of GE agricultural products as far back as the 1980's. In the 1980's, rBGH, a stimulator of bovine growth and milk production, was introduced. Skeptics of rBGH believed that this hormone would amplify the overproduction of milk and consequently exacerbate the decline of dairy market prices. Vermont Representative Dexter Randall and a professor at the Institute of Social Ecology, Brian Tokar, began working with GE issues when rBGH was exposed as a threat to Vermont's dairy industry. The economic threat of rBGH to dairy farmers stimulated the formation of several organizations. Economic factors as well as the inorganic nature of rBGH revived strong opposition within the organic community, providing an additional incentive to organic-based groups to resist the use of genetic engineering in agriculture.

In addition to the introduction of rBGH, the negative publicity of unsuccessful GE products as well as biotechnology research heightened public skepticism of genetic engineering in Vermont. For example, the proclivity of Calgene's Flavr tomato to bruise and have a short shelf life gained negative attention. In 1998, a leading research scientist, Dr. Arpad Pusztai announced in a television interview that rats which ate genetically modified potatoes had stunted growth and experienced a decrease in size in their hearts, livers and brains. A study citing that Bt corn pollen killed Monarch butterflies was published in the scientific journal *Nature* on March 20, 1999; this ignited pervasive media coverage throughout the country. Further negative attention occurred in October of 2000 when a young woman went into anaphylactic shock after eating three corn tortillas with Bt contents.

Along with the health problems of GE foods unveiled by these scientific trials were the stories of farmers being sued by biotech companies for unknowingly using

their patented GE seeds without permission. An example was a Canadian soy farmer, Percy Schmeiser, who was sued in 1998 by Monsanto and who lost the case several years later. The awareness of this particular case, as well as additional lawsuits in the West, circulated through Vermont with the help of the 2005 documentary, The Future of Food.

On a statewide level in Vermont, the accumulation of these events stimulated the initial stage of a social movement. According to social movement theory, the initial stage is the preliminary stage, characteristic of restlessness with inefficient efforts at finding solutions to end a level of discontent (Popenoe 1993). At this point in time, a small group of people in Vermont felt strongly against GE but there was not enough public awareness to induce the type of reform a developed social movement would be capable of.

There were a few interviewees who knew about GE since the introduction of the rBGH hormone -- the majority of people interviewed had only been involved with the GE-movement for an average of two to four years. rBGH was introduced in the late 1980s and was approved in 1993; the commercialization of Monsanto's cash biotechnology crops (Roundup Ready soybeans/canola and Bollgard cotton) took place in 1996; the benchmark biological studies were reported from 1998 to around 2000. Why then has it taken that much more time for a popular social reaction to oppose this new biotechnology?

Our findings indicate that the majority of activists have only recently become involved with the GE-movement and heard of this issue through the efforts of the activist groups. Many people said they have learned about GE crops by reading newspaper articles, listening to reports on the radio and by attending environmental- and agricultural-related seminars. Another highly effective tool was simply "word-of-

mouth" in which co-workers, food suppliers and friends would explain the topic, refer to a movie, or recommend a GE-related book to read such as Seeds of Deception or Dining at the New Gene Café. Although the notorious lawsuits, case studies and impact of the rBGH on the dairy community did alert a small number of GE-free activists, the expansion of information through education stimulated the popular stage of this social movement. This second stage occurs when dissatisfied people become aware that others share their views. At this time, people realize their potential to expand into a social movement because of their increasing numbers (Popenoe, 1993).

The popular stage had a crucial impact on the growth of this movement in Vermont. In the case of the GE-free movement, the formal organization stage soon followed when the membership and aspirations of GE-free organizations were strengthened and additional anti-GE groups were formed. This stage is known for its development of unity, values, goals, leadership, policies, and plans of action. The formal organization stage brought about changes including resolutions being passed in 83 Vermont towns; a seed labeling law passed in 2004; and the potential of a Farmer Protection Act being passed in the nearby future.

The steady growth of this anti-GE movement qualifies it as a social movement because it has an organized structure comprised of leadership and sponsors along with a long term commitment to its goals of defined political reforms. Specifically, the Vermont GE-free movement is a type of resistance movement. Resistance movements try to either prevent a change from occurring or reverse a change which has already been made (Popenoe, 1993). In this case, the radical activists are attempting to have GMOs revoked from the market or to at least change the FDA's mandate such that GE foods must be labeled. The more practical activists are pushing for liability – that

is, legislation which designates responsibility to the biotech distributors when unwanted GE contamination occurs.

According to social movement theory, success is related to a movement's increasing or decreasing level of support. Continual education seems to result in an exponentially growing awareness and rejection of GE, thus promoting the strength of this social movement. In correlation, a stronger movement and activist involvement raise the public awareness of Vermonters. Thus, this snowballing effect will continue to amplify the power of the GE-free movement in Vermont. As already seen in our interviews, this movement may be growing since many of the activists have only been involved for a few years. However, as Secretary Kerr had stated at the NOFA conference, there remains numerous farmers who passionately support GE just as much as anti-GE activists oppose it. Nonetheless, there has been little resistance to the GE-free movement because the law has already been in favor of GE advocates – thus, resistance groups opposing the GE-free movement are unlikely to hinder the efforts of the GE-free activists. An apprehensive pro-GE dairy farmer commented on his concern for the lack of activism of conventional farmers who support GE:

> *The problem is, conventional farmers whether they're pro-GE or not don't voice their opinion in Montpelier enough. When you've got Rural Vermont and Vperg and such that are there lobbying everyday. To me that's an issue, I mean I'm a dairy farmer and it's the dairy farmers fault because as a group we're not up there lobbying. It's going to be tough road for sure. (Eric Clifford)*

As described in the case study, stakeholder groups were differentiated based on their interests, goals, their relative power; the importance and influence they have, the multiple roles they have and the networks they belong to. Additional social science theories have identified two categories of resources that are critical to stakeholder group mobilization – material and nonmaterial. Material resources such as money, labor and equipment are used to perform the actual action tasks whereas

nonmaterial resources such as leadership, consensus and moral engagement motivate participation and facilitate coordination (Rowley 2000). In our case study of Vermont's GE-free movement, the multi-million dollar Monsanto Corporation exceeds the material assets of the anti-GE activist groups. As a result, biotech companies like Monsanto can afford to hire scientific and technical experts who are responsible for developing new products as well as experienced personnel who are responsible for managing and leading the company.

Other factors resulting in stakeholder group mobilization and action are attributed to power, legitimacy and urgency. There are different modes of power. The ability of one person to influence others is one type of power. A higher level is tactical or organizational power which controls the setting for interaction. For example, the biotech corporations exhibit tactical power by presenting only positive data regarding the safety of GE-products. Also, GE activists employ a type of tactical power by protesting, marching and boycotting GE products.

The ultimate level of power is structural power, also known as governing power. Structural power has the capacity of rendering certain behaviors possible while making others less possible (Ramirez 1999). As expected, the Federal government possesses this level of power since it is in its control to create and enforce the laws of GE-foods. The acceptance of GMOs has been a blow to the GE-free movement. Furthermore, manufacturers of GE-foods are not required to label them as genetically engineered. The Vermont government possesses structural power. Hence, GE-free activist groups target the Vermont Government to advance their goals. However, the structural power of the state government is limited and can be overridden by federal government ruling. Thus, the ultimate say of the federal government places severe limitations on what activists can influence the Vermont government to do. As

elucidated by Secretary Kerr, at the state level, the government only has authority to establish seed labeling laws and other milder legislation involving farmer security.

The other attributes of urgency and legitimacy are palpable in the biotech stakeholder group because their goals are to make as much profit as soon as possible. There is little dispute with regards to the urgency and legitimacy of the objectives of a multi-million dollar corporation in a capitalistic society. The urgency of the activists is also apparent because they fear that the consumption of GMOs is a threat to their health. Moreover, activists fear that contamination due to pollen drift and GE seed dispersal poses a major threat to the economy of organic and non-GE agriculture. The legitimacy of activists' claims is naturally strong among the GE-free movement but there is an insufficient degree of accord among the rest of Vermont society; only a percentage of Vermonters are passionately opposed to GE agriculture. As Secretary Kerr stated:

> *When we look at what are called internal polls, Vermonters don't show a lot of interest in the GE-free movement. There is a group of people who care passionately on both sides of the issue, but the average Vermonter hasn't shown a great deal of interest. There's a very dedicated band of activists. And they tend to be organic farmers*

Another dynamic, according to stakeholder mobilization theory, favors the biotech industry and federal government stakeholder groups. This dynamic involves interest overlap in which, "the degree to which a stakeholder group will pursue its interests depends on the level of interest similarity across overlapping stakeholders" (Rowley 2000). As described earlier in the case, representatives of biotech corporations and federal legislators have been "recycled", meaning certain authority figures have held positions in both a government regulatory agency and a biotech industry. Certainly this overlap of interest will deter the impact of the anti-GE activists because of the power that the biotech industry has to sway the US

government in making pro-biotech decisions. There is also an overlap of interest between the government and biotech corporations because the US government has stakes in the biotech industry since it can offer the US a competitive edge as overseas and developing markets become increasingly competitive. Therefore on a national level, the conflict of interest with regards to the government and biotech corporations hinders the progress of the GE-free movement

On a state level, interest overlap between the government and the biotech industry does not seem to be as much of a dictating force in controlling Vermont legislation. GE free lobby groups have attempted to persuade Vermont representatives to pass legislation like the Farmer Protection Act. They were successful in passing this bill in the Senate, but the Farmer Protection Act was recently rejected in Vermont's House by a narrow vote. A possible explanation may be grounded in the fact that the Senate and House each had a different version of a farmer protection bill. Many interviewees were unaware of the discrepancy between these two bills. However, the Secretary of Agriculture, Steve Kerr clarified the differences:

> *The bill in the House of Representatives allows the plaintiff, the farmer in this case, to report under a whole array of legal causes of action; absolute liability, strict liability, product liability, negligence, trespass, a whole range, and also allows that plaintiff to make his or her claim for compensation for GE products, for tractor parts, for herbicides, for all the array of inputs the farmers buy. So, not only does it give farmers a very broad set of categories for causes of action under which to sue, it covers all products the farmers buy.*
>
> *The Senate bill, which is the one that is supported by the activist here today is a very narrow bill. It limits the farmer to strict liability as a cause of action. And it limits the farmer's product array to GE seeds. The state's leading trial attorney has said intestinally, why would we ever pass this Senate bill? The bill being promoted here today. It takes rights away from farmers that they have today.*
>
> *The question is, to be very blunt, why are people pushing the other (Senate) bill? The other bill is very narrow-minded… and many people in the state have concluded that the so called Farmer Protection Act is NOT very much about protecting farmers; it's about stigmatizing the technology. Because if you are REALLY after farmer protection, why wouldn't you go for the*

> *expansive bill with all the causes of action and all the products farmers buy. What's the big deal just about strict liability just in GE seeds, unless this is really just about GE seeds.*

As explained by Kerr, the House bill offers a much broader range of protection whereas the Senate bill, which is supported by the activists, only covers GE liability issues. Skeptics of the narrower Senate bill believe it is a way for the activists to stigmatize GE products. Perhaps the House rejected the Senate bill because they believe that the Senate's version of the so-called "Farmer Protection Act" is in fact protecting the interests of the anti-GE activists over those of Vermont farmers.

According to stakeholder mobilization theory, a deterring factor to successful group action involves a "congruence problem." This is based on the concept that a group will not be successful if it does not have a clear and agreed-upon focus on its objectives, allotted roles and a plan on which to achieve those goals. In other words, if individuals vary in their perception of objectives or strategies, then the organization as a whole will not grow (Ramirez 1999). A congruence problem within the anti-GE movement is evident.

It is important to make a distinction between those activists that are concerned with farmer's rights, and those that are mainly concerned from the consumer perspective. There is a wide range of activists groups within Vermont, from larger organizations like Rural Vermont and the Institute of Social Ecology ranging to Windom County Genetic Engineering Action Group and small organizations like Addison County. It is important to note that often, the GE issue consisted of just one aspect of these organization's agendas: only a small fraction of their budget was allotted to the GE-free movement. For example, NOFA (Northeast Organic Farmers Association) also works in agricultural education, community food security, and organic certification.

V. Analysis

Farmer's rights activists tend to be members of major organizations in Vermont. These activists are mainly concerned with the socio-economic impact of the biotech industry and are very involved with the legislative aspect of the GE-free movement. Farmers seem to understand the limitations of the state government in their capability of enforcing food labeling laws. The members of the groups such as Rural Vermont and NOFA tend to express their viewpoints explicitly. In addition, they are often operating under an established time frame. Public education is instrumental in publicizing their cause. Often, these activists make efforts to purchase most of their food from local farmers:

> *I've really made some conscious choices to way to get a high percentage from my foods from a 50 or 100 mile radius. I try to buy all my protein directly from farmers ... Both for health reasons and also for political reasons I think its better for the local economy to buy directly from local farmers.*

Rural Vermont is a representative example of an influential activist movement. This organization was founded in 1980's, in response to farmer's financial burdens which had resulted from rising taxes and decreasing revenues. Rural Vermont has evolved into a vehicle for farmers to voice their opinions. Rural Vermont is active in protecting organic farmer's economic rights and campaigning against consolidation of small farms, which has been espoused by the federal government.

Consumer's rights advocates tend to be individuals rather than activist groups. These individuals are more concerned with the health risks which may result from the consumption of GE food. Hence, consumers would like to see laws that would either ban GE foods or at least require GE-foods to be labeled. The individuals that fall into this category tend to have a limited knowledge on the issues surrounding the GE movement and legislation. Their buying behavior is characterized by limited or no consumption of foods containing GMOs. As one interviewee stated:

> *I have definitely stayed a way from packages and processed foods and I spend a lot of money – I mean a lot of money – buying products that are GE-free.*

Finally, similarly to Farmer's rights activists, the members of this category strongly believe that public education is the ideal method to further the GE-free movement in Vermont.

A congruence problem is apparent since there is an obvious difference in the perspectives of farmers and consumers. Although the interests of consumers and farmers in this movement do contribute to the breadth of the GE-free movement, these different agendas and interests may hamper the ultimate success of the movement. An organic seed distributor said:

> *So my involvement has been not so much with those organizations working for a complete moratorium but with those that have been working to figure out how best to figure out what to do now that it's (GMOs) here…I think in a lot of cases the more extreme activists organizations have pushed so hard that it's pushed the conversation off the table and pushed people away from wanting to discuss it. (Tom Sterns)*

Therefore a pragmatic and accepting stance seems to be the more productive approach. If the efforts of radical consumers were harnessed into initially protecting the GE-free practices of certain farmers, perhaps the government would take these claims more seriously and the Farmer Protection Act may have been passed already. For example, if activists favored the broader protection offered by the House version of the Farmer Protection Act, perhaps this bill would have been passed. Furthermore, the ignorance of certain consumer activists who are unaware that food labeling and segregation is a federal issue, may only undermine the legitimacy of other anti-GE claims thereby undermining the GE-free movement's influence on the Vermont legislature. It seems as though the activist groups who have taken on a more

pragmatic approach, by accepting GE but trying to limit its success (damage control), have experienced greater success. These ideals were reinforced by Secretary Kerr:

> *This is such an unproductive and ultimately fruitless effort but it's politics in America…eventually the two extremes are going to burn themselves out. And the rest of us who've been hopefully trying to keep some of our powder dry, will sit down and say, "Fine are you done? Let's get serious about this now because we've got a real economic issue here."*

Thus, Kerr believes that the pro-GE and anti-GE extremes of the GE debate hinder progress. Rather, efforts should be invested to ensure that organic agricultural is preserved while GE crops in Vermont exist. A practical perspective which accepts the reality of co-existence may be the only means to achieving progress in this social movement.

VI. Conclusions

This study investigated the GE-free movement in Vermont. Our research has contributed to our understanding of the characterization of key stakeholder groups as well as the dynamics of their relationships with each other. Thorough analysis with stakeholder mobilization theory and social movement theory has promoted further insight into what the future might hold for this GE-free movement, the movement's limitations and strengths, and it's implications as a technology-resisting social movement.

As illuminated in the case study, the Federal government shares overlapping interests with the biotech industry. The U.S. government's support of biotechnology stems from the impetus to contribute to the competitiveness of the agricultural sector. However, because the government has a stake in the success of GMOs, it no longer functions as an impartial evaluator of safety. The GE-activists interviewed in this study referred to the private interest and the unaccountability of the government multiple times. Thus, the role of the federal government to protect the health of consumers is somewhat overpowered by the national interest of the government to increase competitiveness of the agricultural sector, resulting in distrust of the public – particularly GE-activists

Although the federal government and biotech industry do hold a substantial amount of power regarding GE-products, consumer resistance to GE-products does carry weight. This trend was established by the Monsanto GE-wheat project. Monsanto was collaborating with the Canadian government to develop GE-wheat and had proven that GM wheat increased crop yields by 5% to 15%. However, consumer resistance to the idea of eating GM bread meant that the biggest part of the US export

market would disappear overnight (Brown 2004). As a result, Monsanto halted its future investments and endeavors with their wheat products.

Although consumer resistance to GE was illustrated in the GE-wheat project case, overall, such resistance has not been found to be widespread. Although most farmers, GE-activists, and others involved with agriculture are aware of GMOs, the mainstream public is not (FDA 2000). The ignorance of the mainstream public regarding genetic engineering makes large-scale consumer rejection of GMOs unlikely. The GE-free movement is complicated by the fact that there is a co-dependence between consumers and the biotech industry. Moreover, because 90% of the food consumed in the US does contain GE-ingredients, it would be almost impossible for consumers to completely withdraw from purchasing GMOs —which would be instrumental in the elimination of GMOs from the marketplace. Similarly, because complete rejection of GE-ingredients is highly unlikely in Vermont, we predict that passing laws which make the biotech industry liable for cross-contamination - as opposed to making farmers liable - is a more realistic path towards achieving part of the GE-free movement's goals in Vermont.

Interestingly, if the Farmer Protection Act – which establishes liability – were to be passed in Vermont, the future of the biotech industry in Vermont would be threatened. That is, if manufacturers of GE-seeds – such as Monsanto – were to be liable for cross-contamination of GE-seeds, the incentive for biotech companies to sell GE-related products, such as GE-corn seeds, in Vermont would decline due to costs associated with law suits initiated by organic farmers, and potentially others harmed by cross-contamination. For these reasons, farmers who support GE practices do not want this Farmer Protection Act to be passed. These pro-GE farmers believe that if

GE seeds were prohibited or limited in the state of Vermont, then they would be at a severe economic disadvantage. A dairy farmer who uses the rGBH hormone said:

> *I'm a dairy farmer and 95 percent of all the milk that is produced in Vermont goes out of the state. And the amount of commerce that's in and out, you draw lines on the map. What you're basically doing at that point is putting me at an economic disadvantage, because, I mean the technology is there and I can't use it but the neighbors lets say 27, 28 miles to the west in the state of New York can and we are shipping our milk to exactly the same market, its going to the same consumer. If you want to put me out of business that's what you're doing*.

Therefore, GE proponents fear the economic disadvantages that they will be forced to endure if their GE practices are no longer permitted. Thus, there is potential for Vermont to handicap itself by not participating in the "knowledge-based economy" if it rejects genetic engineering *completely*. Ultimately, Vermont may not be able to optimize its participation in the global economy. Because of the risk of jeopardizing the economy of Vermont's dairy industry as well as the authority of the Federal government, there may only be one solution for the GE-free movement to accept – the concept of "co-existence".

There is a great amount of opposition towards "co-existence" within the organic community. These activists believe that given the nature of this complicated and definite technology, co-existence is simply not possible. They believe that segregation, isolation and containment between GE and GE-free foods would be impossible feats once these GMOs are released into the environment. However, given the circumstances, "co-existence" is inevitable. Therefore, it would be in the activists' best interests to develop solutions to minimize contamination, segregate GE from non-GE foods and ensure that the goals of the GE-free movement will be achieved to their fullest potential.

Upon Vermont's acceptance of "co-existence", compromise between both proponents and opponents of this biotechnology is inevitable. Thus, it is important

that the two sides – GE and non-GE –compromise to reconcile the differences – especially between organic farmers and biotech industry. A major factor in such a compromise would involve a consensus of the level of allowable contamination in GE-free or organic products. The government appears to be trying to appease the organic farming community by proposing the feasibility of "co-existence" which essentially refers to a tolerance-level: organic crops may still undergo cross-contamination, but by allowing for a 5% GMO content in food-products these crops will still be marketed as organic.

> *We do not want organic agriculture to be hurt. But if your definition of hurt is zero...it's going to get hurt. You've already conceded at that point. Let's perhaps define tolerance as the Europeans. For instance perhaps you know, they are working aggressively at co-existence. Secondly, they've already come to grips with the tolerance issue. They allow a food product, a food product to have to 9/10th of one percent GMO content without being so labeled. It's a tolerance. They're way ahead of us. And...they offer some answers for us as well; which is the good news. (Steve Kerr)*

Indeed, if "co-existence" were to be implemented in Vermont, this would raise a number of ethical concerns which would need to be addressed. For example, why can a product containing 5% GMO-ingredients be labeled as organic, as opposed to a product containing 7% GMO-ingredients. However, as a pro-GE dairy farmer argued, there is no such thing as a food being 100% organic because it is impossible to guarantee that a food is 100% of anything. Organic and GE-free advocates must understand that a "zero tolerance" policy of GE contents in foods is unrealistic.

> *To say that a food is 100 percent pure, that is to me just not expectable because no one can guarantee that. So to say that something is GE free or the one I like the best is hormone free, that can't be guaranteed. I have no problem with the word organic because that's a practice that's not a product. To label in such a way that it can't be guaranteed than that is an injustice to the consumer and I am opposed to it. (Eric Clifford)*

Some activists groups and politicians have realized the importance of the GE issue and are focusing on creating dialogue between proponents, opponents and

practical users of genetically engineered seeds to facilitate reconciliation between these different sides. As a tool to create dialogue between the various stakeholder groups, education is underscored as key to informing Vermont communities. Educating the community about genetic engineering is important in the advancement of the GE-free movement from the activists' perspectives. To them, people's awareness is important. However, the effectiveness of education is limited in that mainly those people who are concerned with biotechnology-issues actively seek out to be educated, unlike the mainstream public. Such education and communication can open the doors to new possibilities and solutions. Examples of potential solutions include: passing legislation which will protect the farmer in the event of cross-contamination and a 5%-tolerance for non-organic ingredients in food-products labeled as such (organic).

By embracing the organic foods sector – which by 2010, is expected to increase by 108% in market-value – and by permitting the use of GE-products, which have been indicated to increase crop yields and increase revenues – Vermont may experience "the best of both worlds": exploit the organic foods market and benefit from modern technology. Since organic is a growing sector, it would be in the organic community's favor to accept a low level of GE contamination – otherwise, it would be almost impossible to market any foods as organic.

Ironically, the organic community, who has been the strongest in their opposition to the introduction of GMOs in Vermont, may in fact benefit the most from GMO-acceptance. Some organic supporters admitted that GE has in the past and will most likely continue in the future to serve as an advertisement for organic products. The introduction of GMOs into Vermont may enhance the awareness and demand for organic foods. People who normally would not have considered organic

might now look to purchase organic foods for fear of GE contents in conventional food products. One dairy farmer believes that a possible explanation as to why the organic community has acted so strongly against GE foods is because it is a way for them to justify the health and nutritional benefits of their chosen organic lifestyle:

> *I mean I understand where the organic community is coming from. I understand, I know that they get really, really at least some of them get really upset when they talk about GE free and or talk about GE and I'm sure they feel as if their hands are tied because without an issue that includes some form of a human health issue they really don't have a whole lot of a case to bring before the people I guess.*
> *(Eric Clifford)*

In its attempts to preserve organic culture and farmer's rights, the mainstream movement against biotechnology in Vermont has lost sight of the forest for the trees. We have identified a "congruence problem" within the GE-free movement: some are concerned with farmer's rights, and some mainly with the presence of GMOs in food products. It follows that all members of the GE-free movement should agree on clear and defined objectives. Furthermore, in order for the GE-free movement to achieve these objectives, a pragmatic approach would be most beneficial. A limitation that this GE-free movement faces is that legislation to protect organic farmers against cross-contamination does not guarantee that the irreversible effects of cross-contamination will be prevented. However, legislation which establishes liability to the biotech companies will hopefully drive GE seed distributors out of the marketplace. Therefore, the best strategy to protect and sustain the natural and organic agriculture of Vermont is to use these liability laws which would ideally minimize the commercialization and utilization of GMOs.

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VIII. Appendix

INFORMATION SHEET

Project on GE Free Vermont

As part of our project requirement as undergraduate students at Worcester Polytechnic Institute in Worcester, MA, we are doing research on the activist movements against genetically engineered food in Vermont. We are majoring in Biology, Biomedical Engineering, and Civil and Environmental Engineering. This project satisfies our Interdisciplinary Qualifying Project requirement to examine the impact of technology on society. This project is the equivalent of 3 course credits per student.

The research team consists of Kathryn Carpenter, Ryan Starbuck and Helena Zec. The title of our project is "**The movement against genetically engineered foods in Vermont**". We are interested in the GE-Free Movement in Vermont. In particular, we are interested in your and/or your organization's relationship to this movement. We would like to conduct an interview with you. We would appreciate any assistance you can offer us. You are under no obligation to be interviewed. However, if you agree to be interviewed, we will ask you to fill in the consent form below after you have read about your role in this project. We will respect your rights as a research participant.

Interviews will take approximately 30-60 minutes and will be scheduled at a time that suits you. One or more of the researchers will conduct the interviews. Some interviews may be conducted over the telephone. We would like to audiotape the interview, but this would only be done with your consent. Although the researchers will be the only people to read your interview transcript, the interview will be transcribed. After the interview, you will receive a copy of the interview transcript if you wish. You will have the opportunity to correct or delete comments.

On the basis of our interviews we will write a case study. We will conduct an analysis of the GE Free movement in Vermont. This document will be publicly available at the WPI library. Unless the attribution is already in the public domain (e.g., on a website or media material) or you grant us permission, we will not identify individuals by name in anything we write or present, and will seek your guidance on whether it is appropriate to identify you by your position, e.g., policy analyst, communication manager, etc. Information that you provide us will not be publicly available before late March 2006.

GE Free Vermont Project

Research Agreement

I have read the *Research Project Information Sheet* ***for this study and have had the details of the study explained to me. My questions about the study have been answered to my satisfaction, and I understand that I may ask further questions at any time.***

I also understand that I am free to withdraw from the interview or to decline to answer any particular questions in the study. I may withdraw from this project up to 1 March 2006. I agree to provide information to the researchers under the conditions of confidentiality set out on the *Information Sheet.*

I agree to participate in this study under the conditions set out in the *Outline of Research Project* ***form.***

- I agree / do not agree to the interview being audio taped
- I agree/do not agree to being directly quoted and identified in the final work.

Participant:
Signed: _____

Name & Organisation: _____

Date: _____

Please return this form *prior to your interview.*
Please fax: 508-831-5720; ATTENTION: Michael Elmes

Telephone interview:

Hello [Mr./Ms.] _____, my name is _____ and I'm a student calling from Worcester Polytechnic Institute.

We are presently working on a project regarding Vermont activists groups against genetically engineered foods. Could I ask you a few short questions for this survey?

Live (in-person) interview:

Hello, my name is _____ and I'm a student from Worcester Polytechnic Institute.

We are presently working on a project regarding Vermont activists groups against genetically engineered foods. Could I ask you a few short questions for this survey?

General questions:

Interviewer should record gender:

1. Could you please give us your name?
2. What is your profession?
3. Have you heard about activist groups in Vermont opposed to genetically engineered food?
   YES → continue
   NO → terminate

Interview questions:

1. Talk about the first time you heard about the GE free movement in Vermont.
2. Talk about which organizations or individuals may pose a threat to the GE-free movement.
3. Talk about your view on the role of the government with regards to the GE free movement.
4. Have you made any lifestyle changes as a result of the GE-free movement? For example, do you buy foods that do not contain any genetically engineered ingredients?
5. Have you attended any events sponsored by activist groups opposed to genetically engineered food?
6. Are you a member of an established organization(s) which is opposed to GE food? **If not, skip to question 16.**
7. How long have you been a member of this organization/group?
8. How active are you in the group? Do you hold any positions?
9. How is leadership organized in your organization?
10. In what ways is your sense of self reflected in your membership in this organization? Are there ways in which your sense of self is not reflected? Are there things you do not agree with?
11. Which types of strategies does your group employ to influence local and federal government? How does your group try to influence the biotech industry?

12. What contributes to the funding of this organization? What percentage of your budget is reserved for the GE-free movement in Vermont?
13. What time frame are you operating under?
14. Talk about the legitimacy of your organization's goals?
15. How would you define "success" and "failure"?
16. Who can we contact regarding this issue that you know?

Interviewee: Kari Bradley

Phone Interview

Interviewer: Helena Zec **February 15, 2006**

HZ: Hi Kari this is Helena Zec calling from Worcester Polytech.

Kari Bradley: Hi, How are you?

HZ: Good. How are you?

Kari Bradley: Doing pretty well thanks.

HZ: Alright do you want to get started?

Kari Bradley: Sure.

HZ: It will probably last about 10 minutes or 15 minutes. Talk about the first time you heard about the GE free movement in Vermont.

Kari Bradley: I have to say it's a little hazy, I was not living in the state when I first heard about it. The first time I really understood it was when I moved back to Vermont to take this position as the general manager here, at the co-op. And the council, our board of directors here, had just made a resolution that we are going to promote education around the anti GE movement. And that was sort of my first real awareness that there was a movement happening.

HZ: Can you identify any organizations or individuals that may pose a threat to the GE free movement, other than Monsanto and biotech.

Kari Bradley: To a certain extent I think federal and state government pose a threat. I think there's a real resistance, or I perceive there to be a resistance from the department of Ag in the state of Vermont, the legislature to a certain extent to support legislation that would promote GE free agriculture.

HZ: We actually attended the NOFA conference this past weekend and we were able to interview Steve Kerr and he promotes coexistence. I was wondering what your take on that was.

Kari Bradley: Coexistence? I think that, I would support, speaking personally I would support the study of genetically modified plants and agriculture under controlled circumstances until we can prove their safety and their effectiveness and develop ways that they wouldn't non GE crops. I don't see how production can happen side by side and really benefit anyone but the GE producers. And the other organizations that I would say pose a threat would be large scale farms that are already using GE, and have become to some extent are happy with their products and how they're working for them. I think they have a vested interest in maintaining the status quo.

HZ: Is it your impression that the farmers that advocate the use of GE seeds is that the majority or is that the minority in Vermont?

Kari Bradley: That's hard to say, I really don't know. We work with a small group of passionate organic farmers, so its hard for me to know what the majority has to say out there, of farmers. The ones that we know and we deal with are adamantly against.

HZ: Do you have any idea what the percentage is of organic farmers in Vermont out of the total number of farmers?

Kari Bradley: I have no idea.

HZ: Have you made any lifestyle changes as a result of the GE free movement?

Kari Bradley: I am certainly aware of it and I do my best to avoid the purchase of GE products, I purchase organic when I can, there's a number of things I can do with budget and availability. There's certainly a primary factor when I am making a decision especially about products that I know of like corn or soy canola. The big ones I look for the organic alternative. Lifestyle changes no I'm not personally very active in the movement I think its more on the consumer level and what I do with work to promote that. You probably have more questions about that.

HZ: Do you think that food should be labeled if they're genetically engineered?

Kari Bradley: Absolutely.

HZ: Have you attended any events sponsored by activist groups opposed to GE food?

Kari Bradley: No, I haven't.

HZ: Are you a member of an established organization that is opposed to GE food?

Kari Bradley: Yea, I think the Hunger mountain co-op, I would say is the primary one. The co-op itself is a member of NOFA, the national cooperative growers association, the organic consumers association, the organic trade association. But primarily just being a member of this co-op has taken a stance against.

HZ: So how long have you worked there?

Kari Bradley: About a year and a half.

HZ: I don't know if this question applies but ill ask it anyway. Does this co-op try to influence local and federal government regarding, do you try to influence the biotech industry at all?

Kari Bradley: We supported the legislation that was brought to the legislature this year about the proliferation against GE products and I think we would do more of that in the future I can't really comment on what we did in the past, we have been, I guess the main thing that we do, we haven't done anything directly with the industry, we have supported some legislation and I think the main thing we do is just try to educate our customers, the consumers.

HZ: That seems to be a big theme, pretty much everyone that we've talked to has said education is the most important thing.

Kari Bradley: That's where we see our niche. Of course we definitely play a role in selecting the products we put on our shelves and supply our customers and to our community. We definitely factor in, like I do as a consumer, individually we as an organization factor in how likely is this product to be GE free and use that as criteria to be sold here at all or if we will promote it.

HZ: Do you think its possible to enforce the GE seed labeling law? I know there has been a couple of laws passed in Vermont. Do you think they're enforceable at all? How easy is it to see if a seed is genetically engineered.

Kari Bradley: I think its possible, I don't think it would be a simple thing. I don't know enough about the enforcement logistics to really comment. To get 100% compliance would be really a stretch. But I think its possible to get the bulk of it.

HZ: What contributes to the funding of your organization? Is it mostly revenue, consumers buying your products? Or are you sponsored by other organizations as well?

Kari Bradley: Well its all through our retail efforts.

HZ: In terms of the GE free movement how would you define success and failure?

Kari Bradley: I think success should be in part a sense of awareness about the issue and a certain level of education that people know understand what concerns are, pros and cons so they can make an informed choice about themselves. And I would think for me personally mandatory labeling of GE products would be a real powerful measure in the spirit of letting consumers make an informed choice and I think that would be the ultimate goal in a lot of ways. I am a little pessimistic that we would be able to get legislation that would slow the proliferation of GE in this world, in this country anyway but I think that given the right information the consumer will make choices such that genetically modified ingredients won't play a major role in the long run.

HZ: My impression is that most of the products on the market are genetically engineered so even if they were labeled do you think consumers would make an effort to buy non GE foods?

Kari Bradley: I think that if we would just change the labeling tomorrow, we would see a modest dip in sales. But just having that label on their would just bring about an awareness that we just don't have right now. We're going to question why and learn more about the issues and make it more of an above board issue that will be debated in public. I don't see that happening right now. To a certain extent Vermont, but I don't see it nationwide and that's what needs to happen to really have an affect on companies that are pushing it.

HZ: Right, great. Do you have anything else that you would like to add? Additional comments?

Kari Bradley: Nope

HZ: Well thank you so much for your time and I'm sorry that I had to cancel the first time.

Interviewee: Annie Claghorn **In-Person Interview**
Interviewer: Helena Zec **NOFA Winter Conference**
February 11, 2006

***HZ*:** I know you already told me your profession but if you could tell me again on the tape.

Annie Claghorn: I'm Annie Claghorn and I'm an organic Dairy farmer.

HZ: Tell about the first time you heard about the GE free movement in Vermont?

Annie Claghorn: I guess it would probably be about 3 or 4 years ago and I was aware of the issue going on across the country about farmers who use genetically engineered crops and than chose not to the next year and were sued by the industry for supposedly saving seed when they didn't or farmers in Canada who had seed brought onto their farm and it was quite a waste of see when they claimed they didn't. They got sued for a lot of money and actually lost and that was when I first started hearing about it.

HZ: What organizations or individuals pose a threat to the movement.

Annie Claghorn: The movement against?

HZ: The movement against.

Annie Claghorn: The Biotech industry, I think its doing a good job of selling the good things that they feel are present in genetic engineered crops but not so good at covering the possible problems for consumers who don't want to eat GMO's or farmers who don't want to grow GMO's.

HZ: What's your view on the role of the government on this issue?

Annie Claghorn: I think the government should be much more independent from the biotech industry because I think there's a huge amount of money being made by the biotech industry but at the expense of other prospects of society that haven't really been taken into consideration. I think the government needs to be the one to really stand up and call for more testing of these, when they're actually talking about bioengineering of food.

HZ: Are there any changes in particular that you would like to see in the future? Like labeling laws?

Annie Claghorn: Labeling laws I think would be really important for food. Labeling of the seeds which is supposedly a law in Vermont but it is never enforced I don't think it's a law in other places, other states. I think people should be able to choose, to know whether they're eating GMO's or not.

HZ: How enforceable do you think the perceived labeling law is in Vermont? What's your opinion about that?

Annie Claghorn: I think its enforceable but I think that our current commissioner of Agriculture isn't using all of the tools that are probably there for him to do it.

HZ: Have you made any lifestyle changes as a result of the GE free movement?

Annie Claghorn: I definitely try and avoid refined food we tend to try to buy organic food anyway. I'm more conscious of anything that I buy in the store that has high fructose corn syrup because it probably has GMO's in it. I do have a son who's 14 and I am just thinking of him also try not to expose him to any unknown possibilities. Cause I do believe that there really could be problems with them.

HZ: Have you attended any events sponsored by organizations against GMO's?

Annie Claghorn: Well I'm actually working here today for Rural Vermont I'm not a board member of rural Vermont but I'm just trying to help move this strict liability bill along and which wont stop GMO's from being grown but will just put the liability onto the manufacturer instead of the farmer who is using them. Other than that…

HZ: Are you an active member of any other organizations?

Annie Claghorn: I'm an active member of milk cooperative, organic soy and Milk of Vermont.

HZ: And how long have you been a member?

Annie Claghorn: We've been certified organic for 10 years and we've been serving the organic valley for 5 years. And we've been members of Milk of Vermont for probably 20 to 25 years.

HZ: Can you describe how leadership is organized in these organizations?

Annie Claghorn: Milk of Vermont is run by a board of directors. Its not just farmers, its consumers and they've been interested with organic farming and gardening.

HZ: Can you talk about the way your personal values are reflected in these organizations and what ways they're not reflected.

Annie Claghorn: I can't think of any ways that they're not. There is so many good reasons to be involved with them in terms of farmers there's so few farmers now and we have to work with consumers to educate the public about growing foods without antibiotics and pesticides and herbicides.

HZ: In what ways do the organizations that you're a member of try to influence local and federal government and even the biotech industry? Do you have any strategies you would use to try and influence them?

Annie Claghorn: I think education of the issues and getting the word out, cause obviously we don't have the money that the biotech industry has so we don't have the

lobbyists that they have and so they try and work on education and trying to get some bills into the legislature that might help. And farmer education is a big part of it.

HZ: And what contributes to the funding of your organization?

Annie Claghorn: They do get membership which is a big one and they do get occasional grants from different foundations they do get funding from the Vermont Department of Agriculture. Those are the main things I can think of.

HZ: And how would you define success and failure as a member of these organizations what would define as success?

Annie Claghorn: I would, anyway that we can make farmers and consumers aware of this issue so that there isn't a danger of organic farms getting inundated with bioengineered food. The yeast or pollen and actually stopping some developments of certain products even being put on the market for instance in my mind putting genetically engineered crops which just come out to our farms just by whenever we graze we don't even have to seed it, it just comes in on its own and if its genetically engineered it would be pretty much impossible to get rid of so I could, that would be a success to me to get something like that stopped … to plant genetically engineered.

HZ: And what about failure?

Annie Claghorn: I think having biotech being able to put whatever continued about it, the seed stocks the seed companies and having farmers have less control over what they want to grow and less control over what their consumer are able to be supplied with. My view is that the farmers have that draw to try and forget about the issue and try and be able to get people who want to choose whether to rely on GMO's and its our job to try and make that happen so that if there would be failure we couldn't really make any headway there.

HZ: Is there a timeframe you're operating under?

Annie Claghorn: Nope no timeframe we're just trying to do the best we can and while we're farming we don't have a lot of energy for other things but this is really important to us. This present bill right now is really close to becoming a reality but its really still up in the air whether it will or not and that's why we're sort of pushing this so hard. Just to try and see if we can get it through.

HZ: And can you talk about the legitimacy of your organization's goals? I mean obviously you think they're legitimate.

Annie Claghorn: I do but it … the way you're looking at it. down through history the thing that's different about my understanding of genetically engineered food is that DNA has been changed and there has not been any bio-testing they haven't really had to do any testing and I think it's a matter that there's a lot of money to be made and I think we can do it without bioengineered crops and to me that's legitimate.

HZ: Do you have anyone else that you would recommend that we contact… in the government?

Annie Claghorn: Have you talked to Butterworks Farm Jack Lazor he would be either here or somewhere. He wrote his neighbor up about a situation that came up, he grows a lot of crops.

HZ: Is there anything else that you would want to add to your comments?

Annie Claghorn: I think working with farmers about proving that food can be grown in a healthy way and in well mineralized soils and that's where farmer's interest is. And stepping away from insecticides and pesticides and things that are proven that it can be accomplished and we see a threat from the biotech industry and threat of contamination and just taking away that choice and I think if consumers understood that and the way I understand it they would benefit.

Interviewee: Chelsea Clark **In-Person Interview**
Interviewer: Kathryn Carpenter **NOFA Winter Conference**
February 11, 2006

KC: Can you say your name and profession?

Chelsea Clark: Chelsea Clark and I work on an organic farm doing marketing.

KC: What is your general view of GMO's?

Chelsea Clark: My general view is that they kind of scare me.

KC: Can you talk about the first time you heard about the GE-free movement in Vermont?

Chelsea Clark: Probably eight or ten years ago.

KC: Can you talk about which organizations pose a threat to the GE-free movement?

Chelsea Clark: That pose a threat to the movement … Monsanto and any of those related. I think potentially – although I hate to say it – University of Vermont because they get so much money from those companies. And they have a lot of say with what's going on in the state.

KC: Can you talk about your view on the role of the government with regards to the GE-free movement or just GMO's in general?

Chelsea Clark: Well I think the government should be working to educate the public and trying to get all the information on the table. And not be accepting bribes essentially from
the companies that want to make money off of the sales and further exploration of that whole market.

KC: Have you made any personal lifestyle changes as a result of the GE free movement? In terms of what you buy and eat?

Chelsea Clark: Not really as a result of that because I was already buying organic and eating
organic but I certainly would look for a label if there was one and not purchase GEanything.

KC: Have you attended any events sponsored by activist groups who are opposed to GE-foods?

Chelsea Clark: No, I haven't.

KC: So you're not a member of an activist group?

Chelsea Clark: No

KC: What do you predict for the future for the status of GMO's? Do you think they're going to be stricter in Vermont at least? Or do you think your going to make an impact? Or is it just kind of impossible to really make a change.

Chelsea Clark: Well I predict that probably- it might get somewhat more strict or limited. But I think that realistically speaking I just don't see the government making the kinds of changes or informing the public, or taking a stance in a way that they should or that would lead to appropriate limitations or outlawing that I think should happen.

KC: That's about it unless you have anything else that you would like say about the issue of genetic engineering.

Chelsea Clark: I do actually. My feelings about GMO's when it comes to these feelings that I
just expressed have to do with food related to agriculture and I have very separate feelings when it comes to medicine and that whole field. Because I know – a lot of people make statements about GMO's and biotechnology – but they are really two very different things. And I do think there is a place in them for the world but our food system is not on of them.

KC: OK, that's really interesting. Thanks a lot.

Chelsea Clark: Thank you.

Interviewee: Eric Clifford **Phone Interview**
Interviewer: Ryan Starbuck **March, 2006**

RS: What is your name and profession? Your full name.

Eric Clifford: My name is Eric Clifford.

RS: Yes. And your Profession?

Eric Clifford: I'm a dairy farmer.

RS: When was the first time you heard about genetically engineered food?

Eric Clifford: Pardon me again?

RS: When was the first time you heard about genetically engineered food?

Eric Clifford: Probably, probably 10-15 years ago.

RS: When was the first time that you started to hear about opposition in Vermont against it?

Eric Clifford: Realistically not until it was for sure that it was going to be sold here. Its hard to peg me down on a date.

RS: That's okay

Eric Clifford: Its probably, there was some opposition probably as far as 10 years.

RS: What is your view on the resistance towards Genetically Engineered food?

Eric Clifford: You mean the peoples resistance?

RS: Yes.

Eric Clifford: In some respects its warranted in that there's always reasons for concern or doubt and in that respect I respect anybody if they have concerns or doubts or whatever. It kind of varies too whether they're, probably whether they're a consumer, a true fire consumer or whether they're a producer and than again I'm a dairy farmer so I'm not into the vegetable produce aspect of it. So that's a different take too. I mean I understand they're concerns. But on the other hand what I'm looking at is, as far as being, is it a threat to human health. And certainly its not, its been established that its not.

RS: How do you view the relationship between the government and their view on genetically engineered food?

Eric Clifford: Do you mean their take on the organic standards?

RS: Well their take on what their doing towards the movement and people against genetically engineered food?

Eric Clifford: In Vermont or in the country?

RS: In Vermont.

Eric Clifford: I think they're being quite fair. My take is that they're there to represent all people in the state whether they're organic or conventional producers or whether they're consumers. I think they're being as fair as they can be.

RS: Do you personally ever buy organic?

Eric Clifford: Sure I belong to a CFA with an organic farmer next door for vegetables,

RS: Who are the major groups that want genetically engineered free food in the state of Vermont?

Eric Clifford: Who is a group?

RS: No what are the major groups that are fighting against genetically engineered food in Vermont.

Eric Clifford: Which ones? You mean the ones that are opposed to it or the ones that want it?

RS: Opposed to genetically engineered food.

Eric Clifford: Probably NOFA, the Northeast Organic Farming Association, Rural Vermont, VPERG those would be the 3 major political groups that are opposed to it.

RS: Do you think there are any possible long term effects of genetically engineered food?

Eric Clifford: I assume you mean negative.

RS: Yes

Eric Clifford: There probably will be insect resistance, GE resistance insects, if I'm saying that right. There will be insects that build up tolerances to GE. But by the same token, grubs and insects build up tolerances to pesticides and some organic methods as well. That would be probably my biggest long term concern.

RS: What's your take on the labeling laws that people are trying to pass and have passed in the state so far?

Eric Clifford: Number one as long as they're truthful I have no problem with that. But to say that a food is 100 percent pure, that is to me just not expectable because no one can guarantee that. So to say that's something is GE free or the one I like the best

is hormone free. That cant be guaranteed. I have no problem with the word organic because that's a practice that's not a product. To label in such a way that it cant be guaranteed than that is an injustice to the consumer and I am opposed to it.

RS: Do you know of anyone, if anyone has had any negative take on the labeling of seed in the state?

Eric Clifford: You mean consumer backlash because of labeling?

RS: More on the farmer side and if any farmers have had any problems that disagree with the fact that GE seeds are labeled?

Eric Clifford: Wait a minute. You mean the GE seed itself is being labeled?

RS: Well the package for the seeds, yes.

Eric Clifford: Do I know of any farms have had a problem. Rephrase the question for me.

RS: Has there been any negative take on the labeling of seed bags in the state that you know of?

Eric Clifford: No

RS: What is your view on the Farmer Protection Act that Rural Vermont is trying to pass?

Eric Clifford: Totally unnecessary. Totally unnecessary. I mean I cant understand how they can continue to pursue it and talk legislators into it. They've taken testimony, the legislature took testimony from attorneys that have sued Monsanto and won. Attorneys are saying that they don't want this law. That it is not a good law. The department of Ag, the farm bureau and the everybody, I shouldn't say everybody, those organizations of people the testimonies have said that they don't want it.

RS: Who do you feel should be responsible for farms that end up being contaminated by genetically engineered seeds? Organic farms.

Eric Clifford: Ok they're contaminated. At that point what's the problem?

RS: Organic Farmers have a big problem or at least some of them have a big problem with the possibility of genetically engineered seeds entering their farm. Who do you think that should be responsible if a farmer feels that lose their entire crop because seeds?

Eric Clifford: First we have to back up. According to the old organic standards, even if there crop was contaminated, the procedure they use is correct and therefore it's still an organic crop. If they're trying to say to their consumer that they are trying to sell something as GE free that's way and above the organic standard and at that point they have to be buying some serious buffer ground because its something that's way above the organic standard. Do you follow me?

RS: Yes, yes. What do you feel of the contract that Monsanto makes farmers sign in order to use their seeds?

Eric Clifford: It's the same contract that's used by pharmaceutical companys that we buy drugs from. I mean I don't have a problem with it. The attorneys that look at it say they still can be sued there's no problem there. It doesn't limit the legal action against the so the reality is I don't have a problem with it.

RS: Where do you the legislation in Vermont going, and what do you think of the paths that it might follow?

Eric Clifford: I guess it makes me nervous. The reality is that this is kind of off the record but the consumer always wins. And it depends on, the problem is quote conventional farmers whether they're pro-GE or not don't voice their opinion in Montpelier enough. When you've got Rural Vermont and Vperg and such that are there everyday lobbying everyday. To me that's an issue, I mean I'm a dairy farmer and it's the dairy farmers fault because as a group we're not up there lobbying. Its going to be tough road for sure.

RS: Do you think that there is a possibility that the Farmer Protection Act could pass in the state?

Eric Clifford: Probably if it's the watered down version it might.

RS: Do you have any problem with the watered down version of it?

Eric Clifford: It's just like the department of Ag and the farm Bureau and everybody else that says its not necessary, its just another layer of bureaucracy. Reality is it will be more of a hindrance when it comes to neighbor-neighbor conflict and that is a good thing. I don't have a crystal ball so I cant tell you.

RS: What type of opinion is there in the state of actually having a moratorium or a GE-free zones and that sort of thing?

Eric Clifford: They should just come and buy my farm because I would just fight them in court. It's really ridiculous, I mean I'm a dairy farmer and 95 percent of all the milk that is produced in Vermont goes out of the state. And the amount of commerce that's in and out, you draw lines on the map. What you're basically doing at that point is putting me at an economic disadvantage, because I, I mean the technology is there and I cant use it but the neighbors lets say 27, 28 miles to the west in the state of New York can and we are shipping they're milk to exactly the same market, its going to the same consumer. If you want to put me out of business that's what youre doing. And again the GE thing, live with it or live without it the reality is I want the options to be abel to use it especially down the road. When some of the stuff comes along that may infact be truly outstanding as far as the ability to feed people. I mean when the average person in the world only has 2 dollars to feed themselves, we got a land base that's shrinking like crazy, we have to come up with a serious plan. Some of the drug tolerance things that they can breed into GE into seed those things have an incredible merit when it comes to less water in this country for

irrigation. I mean those things are, those things have an amazing possibility down the road. That's where I'm at. I just want options and I just don't want people to start limiting my options.

RS: Has your town tried to pass a moratorium on GE Seeds, GE free, because I know other towns in the state have and I was just wondering about your state?

Eric Clifford: There was a discussion and a couple of years ago the town passed one of these non binding resolution things in support of, I believe it was at that time, in support of GE moratorium. It was one of those non binding resolutions.

RS: Do you think even trying to ban genetically engineered food in the state is even legally, federal laws don't see it as possible but groups are still trying to make it happen?

Eric Clifford: I don't believe its possible. The state can do anything they want but is it legal and you know there's a lot of farmers here that would say that would be the straw that broke the camels back. You know that's it, pack up we're moving to Syracuse. We don't need this anymore. Land around here has incredible development potential right now and I belong to a discussion group, a dairy farm discussion group, it represents a lot of farms a lot of cows. Its one of the things that we talk about a lot. If they don't want use here lets just move. Build houses and go.

RS: How big is your farm?

Eric Clifford: I've got 498 acres.

RS: How do you feel that Steve Kerr the Secretary of Agriculture is handling this issue?

Eric Clifford: I think he's done a really good job. You talk about straddling the fence and that's where the secretary of agriculture is. I think he's done a really good job and I mean it depends on which side of the fence you're on. And you always think he could do a better job just because of your position. I think he anybody were to say that Steve doesn't care or Steve is being heavy handed in either manner I'd strongly disagree. I think he's looked at the issues pretty fair its just that some of the outcome isn't something that necessarily we are GE free people.

RS: That's basically it. Do you have any other comments or anything else you'd like to say?

Eric Clifford: No I guess not. That's, we could go on for days if you wanted to. No I mean I understand where the organic community is coming from. I understand, I know that they get really, really at least some of them get really upset when they talk about GE free and or talk about GE and I'm sure they feel as if their hands are tied because without an issue that includes some form of a human health issue they really don't have a whole lot of a case to bring before the people I guess.

RS: Do you have anyone else that you recommend that we contact about this issue any other good people that have strong opinions about using genetically engineered?

Eric Clifford: My friends, I don't do that to my friends. No I'm not going to do that to anybody

RS: No that's fair

Eric Clifford : I just I mean if I had a wish I just wish that all the facts were out and I have some real serious issues, I guess I'm going back to your point about having anything else to say, I have some real issue with VPerg and Rural Vermont and the way they're portraying this whole thing. I understand fully well that some of the organic farmers, young organic farmers are really truly passionate about their business. I understand their concerns but when you get these organizations where they start to mix politics and especially politics in it when these people first derive their livelihood from opposing something. I just, I just have real issues with that. I mean they're not there working 7 days a week to produce a crop for the consumer and for the same token they're deriving their income from it. That's kind of an issue there.

RS: What do you feel is the reason that Rural Vermont is so passionate about this issue? What do you think that organic farmers and people that are pro GE free, that oppose GE are so passionate about?

Eric Clifford: Well I think that's two different questions. Rural Vermont, what is Rural Vermont's mission? Originally they were saying they were a farmer advocacy group who spoke for the farmers but after a while enough people were telling them that they weren't speaking for the farmers. The farm bureau and Rural Vermont were just butting heads all the time. I don't know I can just go on and on.

RS: Where do you see organic farms in Vermont going? Because it's a very, Vermont has a pretty big section of the market in the country compared to the size of the state.

Eric Clifford: Compared to the size of the state but we still have to remember whether its organic or whether its conventional dairy, it's a miniscule amount compared to the rest of the country. When Vermont produces 2 percent of the milk in the country, today if they took Vermont out of production it wouldn't even erase the surplus that there is right now. So its not even, you know what I mean, in the realm of things its next to nothing. Organic, where will it go? It will continue to grow, as far as organic dairy goes I don't believe that the organic dairy farmer is getting nearly enough for his milk. He should be getting more. As more organic farms come on online especially some of the ones out of state. There's going to be a lot of organic milk. The organic price will come down. Any economist will tell you with any economy, the more of it that's produced as more time goes on, the margin between the niche and the quote standard product shrink and that will be the case with organic and both conventional milk. There will always be the local vegetable producer CSA type thing, community thing, you know I think that will continue to grow. But that doesn't really put food on the table during the winter months in Vermont and at the same time the organic stuff is so expensive that the average consumer can't afford it anyway. I'm not sure what's going to be done about that but its too expensive for

most people that's for sure. When it is the same product as conventional, how much more do I spend for local organic. Make sense?

RS: Thank you very much for your time I going to send out, ill refax that transmittal and get everything together. And after I transcribe this which will be in the next coming week I will send this to you, is there an email I could send this to you or should I just mail it to you or fax?

Eric Clifford: You can either fax or mail. I'm terrible with email and my wife's away so its like shit I got to have something hard I can read or its not going to work. Just mail it to me or you can fax it to me at that same number that will work too.

RS: Well thank you very much for your time.

Eric Clifford: Thanks for being open minded about this.

RS: Yea well its really, I feel its really important to include in this report just both sides of the issue because sometimes when you talk to genetically engineered free people and all that stuff they're just so gungho about it.

Eric Clifford: Its amazing isn't it. There's a lot of passion there, I'm glad that you have that attitude because the majority of the food that's produced out there in the country is by people that really do care. One of the things that kind of hurts me is that we kind of of get slammed a lot for using rBST or using antibiotics to you know when our cows get sick or something like that or pesticides for crops but the reality is we don't want to buy anything unless its going to make us money and the last thing that we want to do is buy more stuff than what we need because there's no margin here anymore anyways as far as making a profit. Its just so, it bugs me when they say you're buying all those pesticides and you're buying all those antibiotics, well the reality is we're buying as little of that as we can. We're just looking at the bottom line. Anyway glad to help you out.

RS: You did a lot, you did very much, yea thank you.

Eric Clifford: Okay yea bye.

Interviewee: Frederick Collins **In-Person Interview**
Interviewer: Helena Zec **NOFA Winter Conference**
February 11 2006

HZ: Talk about the first time you heard about the GE-free movement in Vermont

Frederick Collins: It's been an issue since the beginning of the idea of genetic engineering.

HZ: How did you hear about it, like reading the paper or did you see signs**.**

Frederick Collins: Well, we live in Vermont; by the radio; constantly it's in the paper all the time. Ya know we are members of NOFA and NOFA's very active in that movement so it's pretty much almost part of daily information movement.

HZ: Okay, so it's a pretty well known thing in Vermont

Frederick Collins: That's it's hard to know, it's really well-known among those people who have interest in it. Whether the average Vermonter has interest in it is really hard to tell.

HZ: Alright, how about which organizations or individuals pose a threat to the GE-free movement in VT?

Frederick Collins: Well I think the agri-business industry that is promoting and I think the engineers of the seeds.

HZ: Okay, so basically the biotech industry> Can you think of any organizations like Monsanto or any other biotech corporations?

Frederick Collins: Well to pick on people, Monsanto's the name that comes up constantly. Everybody knows about Monsanto.

HZ: Alright. Talk about your view on the role of the government in this issue; do you think they have done enough or not enough or how do you think they should go about this?

Frederick Collins: Well I think as far as public policy goes, we don't have a lot of faith in public policy makers. UH a case in point is on a talk show on the radio not long ago, our commissioner in agriculture was being interviewed um regarding the genetic engineering issue and he said 'what's the big deal? I have farmers in my town who grow their corn and sweet corn for market in the same field and he says no problem.' He doesn't understand the basic biology and knowing that the seeds this year were germinated last year, and it will be the seeds next year that will determine what type of product has happened between those two species or varieties. So when our commissioner of agriculture says something like that publicly on the radio, you wonder how much they understand the issue.

HZ: Right, right. Have you made any lifestyle changes as a result of the GE-free movement like do you buy GE food or do you buy only organic food***?***

Frederick Collins: Well we're organic gardeners and of course we don't buy seeds that's been genetically engineered. We make an effort not to buy products that have been genetically engineered

HZ: How can you tell which products have been genetically engineered; like are there certain corporations where you can only buy organic seeds or genetically engineered seeds?

Frederick Collins: Um..well…Vermont only labels uh seeds that are genetically engineered. As far as buying products ya know on the open market, uh at the grocery store, we know that a lot of the soy produce in this country is genetically engineered and a lot of the corn. So it's really difficult ya know if you're dealing with that kind of food products.

HZ: Have you attended any events sponsored by activist groups opposed to GE food?

Frederick Collins: Only NOFA

HZ: Are you a member of an established organization which is opposed to genetically engineered food?

Frederick Collins: NOFA

HZ: Okay. How long have you been a member of NOFA?

Frederick Collins: Um I don't know, several years.

HZ: Several years? Are you very active in this group and if so, what's your role?

Frederick Collins: Uh no, not active other than the vendors that come and the active organic gardeners that come out.

HZ: Okay. How is leadership organized in NOFA?

Frederick Collins: I don't really know.

HZ: Okay. In what ways are your personal values reflected in this organization and in what ways are they not reflected in the organization of NOFA?

Frederick Collins: I think one word 'sustainability". I think that says it all about our past and our future.

HZ: And what types of strategies does NOFA employ to influence local and federal government? Can you speak about that at all?

Frederick Collins: Well NOFA actively lobbies for legislation supporting farmers and opposed to genetically engineered products in the state.

HZ: Do they try to influence biotech industry?

Frederick Collins: Well I…the only way I think NOFA influences the biotech industry is to uh, just lobbying legislation at the state level. Vermont's a very small state ya know and on the worldwide stage, economically it's not a component of what Monsanto deals with. But I think Monsanto is really interested in what goes on in Vermont because…what Vermont does is looked on by other states and they're afraid that the movement might catch on.

HZ: Why do you think this movement is so successful in Vermont? Pretty much, it's such a small state yet it has such a strong movement. Can you speak about it at all?

Frederick Collins: Well Vermont is pretty independent number one and ….(inaudible)

HZ: What contributes to the funding of NOFA and what percentage, can you estimate how much of your budget is reserved for the movement against GMOS?

Frederick Collins: You'll have to ask the organizer. I don't know

HZ: Ok. What timeframe is your organization operating under, is there a specific goal you would like to have your goals accomplished by? Like is there a specific time that you would like to have them accomplished by?

Frederick Collins: Well I think NOFA thinks this is urgent because once the seeds are in general circulation and the pollenization and crop pollenization going on, it's too late. Um it's an urgent issue for them. Yeah I don't know if they have a calendar that tells them what date this is going to happen by but it's gotta happen soon.

HZ: Talk about the legitimacy of your organization's goals

Frederick Collins: Well the percentage of the agricultural economy IN Vermont, NOFA 25 years ago, was a percentage that wouldn't even have registered on the scale. You can see even the crowd here today, it's a growing organization and dairy is becoming a smaller percentage of the agricultural economy in Vermont. UH a greater percentage of it is sustainable farmers who are doing their own kind of organic farming. So the organization is growing and I'm a very active member of NOFA and our state legislature is possibly is going to run for the U.S. House this year so, there's influence.

HZ: Okay so how do you define success and failure?

Frederick Collins: As far as this issue in genetic engineering, legislation which would keep genetic engineered products out of the state.

HZ: And do you have any additional people who you'd recommend that we should contact regarding this issue? Or can you think of anyone else at this conference today that would be good at this interview? I think we're meeting with Amy Shollenberger from Rural Vermont later

Frederick Collins: I don’t know of anyone. No, I can’t.

HZ: Is there anything else that you would like to say?

Frederick Collins: No uh, good luck. Do you folks have an agenda with this, do you have an opinion?

HZ: No. We’re just trying to understand it

Interviewee: Kate Corrigan **Phone Interview**
Interviewer: Kathryn Carpenter **February 22, 2006**

KC: Can you just state your occupation please?

Kate Corrigan: I am a graphics designer and marketing assistant at … in Middlebury, Vermont.

KC: Can you talk about the first time you heard about the GE free movement in Vermont?

Kate Corrigan: Well I have some friends that know about it and Jeremy Smith was coming to Middlebury and giving a talk on his book, seeds of deception and my friends told me he was coming so I went to that and that was the first time that I learned about GMO's and what they were and I was so concerned about it that I ended up becoming to get more active and letting people know about it. … who worked with GE free Vermont he used to work at the brewery so I know that …. so I started a local group that helped inform other farmers about it.

KC: So you started this local group?

Kate Corrigan: Yea.

KC: What was the name of the person who wrote the book seeds of dispute?

Kate Corrigan: … wrote seeds of deception.

KC: Could you talk about which organizations or individuals who you think pose a threat to the GE free movement so who would be against your cause.

Kate Corrigan: Well I know that Monsanto would be against it because they wouldn't want opposition to their products and I feel that the ... government is giving a hand with Monsanto and that I think they're scared and I know on a national level like and then the secretary of agriculture she was also on the board of some Monsanto genetic engineering companies and so they all intertwined and so I think unfortunately, a lot of the government officials have stakes in it as well and I've noticed here in Vermont that Steve Kerr and some of our officials that are supposed to be looking out for Vermont commerce seem like they are actually looking out a little more for the corporation. It's just disappointing to see but I guess that happens.

KC: Right - Yes, we actually recently had an interview with Steve Kerr and it was interesting seeing his opinions and he definitely was for the technology and his views was that he thought it would help the environment and then he was preaching the whole thing of coexistence so it was interesting to see that point of view because we weren't really sure how he was standing on the whole issue.

Kate Corrigan: I think that's a lot of industries that's the way they like to sound about it but they're certainly trying to sell their product and working in marketing myself, I know how that's what you've got to do to sell your product and focus on

some good points about it and I feel like they are doing that a little too much and leaving out a lot of the bad points at everyone else's expense so

KC: Right – you kind of already touched on this but the next question is to talk about your view on the role of government and what the government has done about the situation

Kate Corrigan: Well, I feel that I'm really distressed lately because I've been learning the more that I read stuff and learn about stuff the more I see that the government is totally – um - has stakes in this and that's not right when they're supposed to be making choices for the whole country and the benefit of everybody and not just these corporations and you've probably heard about Margaret Miller writing the report for Monsanto and then going to work for the FDA to approve her own report and then going back to work for Monsanto that happens time and time again with them and they think they can approve their own things working under the FDA name and then I was reading also about Monsanto donating $50,000 to the Governor of Wisconsin – stuff like this is obvious to see that it's going to end up benefiting the corporation rather than the whole citizens when people stand to profit and so I hope that somehow the system can change to where government officials are not being benefited or don't have stakes in the corporation because as long as that is going on its' ... making decisions that are going to benefit the corporation and themselves rather than the whole country.

KC: Right, we recently saw the movie "The Future of Food" and it was amazing how they showed the positions of people who had a lot of power and how Monsanto also had a lot of power in the government and how they would flip flop between working for the FDA and also working for

Kate Corrigan: Yeah, I think that is really disturbing and I think that anybody that hears that would be disturbed by that.

KC: Right. There are so many of them and it was incredible how

Kate Corrigan: And then you hear all the scientists – I mean, very smart people giving warnings against doing it and they're ignored just because these corporations are putting the bottom line in this process above the health of the whole country and the environment. So, it's really disturbing.

KC: Yup. Personally, have you made any lifestyle changes as a result of the movement like such as the foods you buy?

Kate Corrigan: Well, honestly, I don't like the idea of eating GMO's. My sister's pregnant and I told her I don't want ... as soon as possible and I don't know if she saw the recent Russian study with the rats – six times the number of baby rats died whose Mom's had eaten GMO's also and I'm also concerned about my pregnant sister so I try not to eat it and I don't want to eat it but I also realize how hard it is and also I feel like I can do more to help out against this by spending time and doing outreach and trying to educate others. I feel like that's more powerful than whether I buy a bag of Dorito's or not. I've eaten it so much now but, if I was pregnant, I'll tell you what, if I got pregnant I would not eat any GMO's if I could help it. I feel like the damage has

already been done. I try to avoid it if I can and I don't like to support those companies and when I buy seeds for a garden it's like if I had time to work on a garden with all this going on, I'm buying from Fedco (?)– it's organic seeds

KC: You're right. It's hard to avoid it fully. The study that you mentioned – is that the one with the Armad Putsti …

Kate Corrigan: No, it was awhile ago, now this study and I'll email it to you was very recent

KC: That would be great

Kate Corrigan: I just got it really recently and it was just published, I think, in the Guardian and some Russian paper probably a lot of papers just not here in America so it's pretty recent and very scary

KC: Wow – we didn't hear that one yet.

Kate Corrigan: I'll forward it to you right now.

KC: Ok, that's great. Thank you.Um, let's see. So, how many events, or what kind of events have you attended that are sponsored by activist groups either your own activist group or say, like Rural Vermont or something?

Kate Corrigan: How many events have I attended?

KC: If you could just talk about it or a brief description or what kind of events have you attended?

Kate Corrigan: Well, I've been to 3 that were meetings with other action groups trying to, basically, all the action groups that I have worked with had 2 missions and mainly the main mission is just to educate people and most people don't know they're eating it and the other mission was to try to get more ... to hold off on it until we felt that it was really safe and to be more cautious but that goal was kind of put on hold and I chose to focus more on the Farmer Protection Act which Rural Vermont has also been working on and because I felt like that that was a lot more doable and addressed the immediate concern of insuring that the organic farmers in Vermont would still even have the ability to be able to grow GMO free crops here . So I went to some meetings like that I went to the Constants ... committee Meeting at the State House Wednesday Feb 1st. and I put together with my group that I had that are current disbanded now but when I had a little group going here we put on four events at the Library which was we showed three or four movies and had a candidates forum during the last movie night to try the direction here so we tried to get an idea of how ourcandidates felt about GMO's and, to be honest, most of them just didn't know about them at all. And, um, what other events - um - – I haven't really been to any of the big – most people go to the state house but I have to work full time so it is hard to do that. Um, and there is really ...? but I tried to help organize that one

KC: Are you a member of any other organization involving this issue or just your Addison County one?

Kate Corrigan: Well, like I said, my groups that I have here, pretty much everyone has gone their separate ways but I'm the only one still working on it in this town and county. There are a few other people like other organic farmers , of course, are really working on it and mainly, like I said, focusing on helping getting the Farmer Protection Act passed right now but I'm really not a member of an organization.

KC: So, how many people, when it was more involved or active, how many people would you say were involved in your organization?

Kate Corrigan: Well, we made a group called Addison County GE FREE food group and the first meeting we put on, only one other woman came and then they got a few more people. I would say, all in all, we probably had less than 10 people.

KC: How long have you had this going on since you started this Addison County group?

Kate Corrigan: Um, when did I start it? It was, geez, I'm forgetting now, when was the last election year? Was it 2004? I think it was, yeah, 2004. I'm pretty sure it was 2004. Must have been Spring 2004 when I was putting the group together. I think I said I went overseas about a year ago and I was out of the country for 6 months so when I left, at the same time that I left, the rest of my group was sort of disbanding and having no interest and so when I came back, really, nobody – well, people were still doing little things here and there if they can if I ask them but really there is not many people working here besides me which kind of puts a lot of pressure on with what's going on right now with me in my district

KC: So, you were definitely the leader and basically the initiator of organizing events.

Kate Corrigan: Yes, because, really, when I found out about it, it feels really hard because I don't have a lot of time but I feel like all my friends and family and everybody in the country was eating something that wasn't really good for them and they didn't know and I felt like if I didn't tell or at least, try to tell people about it, I just would feel guilty if I didn't do anything. That's how strongly I feel about this.

KC: Okay.

Kate Corrigan: And I'm always, now I don't know if you know about the new national ids – the new national animal id system ...

KC: No

Kate Corrigan: The more I find out, now they are going to try to make everybody have a micro chip and not just animals and GPS systems and stuff. It's the same people doing it –Monsanto and USDA and it has to do with . I know this sounds like really paranoid so I'm pretty sure that their goal is really trying to control the food supply and then when they do that, that is a really good way to have control over people. It really makes my life hard because my whole life has been to be able to grow my own food and animals and not have to buy stuff from the store 'cos I really

like that idea and with this new stuff they are doing it makes it really hard to be able to do that.

KC: Right. So, they want to put chips in every farm animal basically. Is that what they do?

Kate Corrigan: Make a tag and they would track it and you would be forced to report any animal going off your land or dying or having birth within 24 hours or be subject to fines. They would enforce it. It is really an invasion of privacy and rights and it's just, I feel like there is – I know your are going to think I sound psycho – but there is a war going on right now. It's to fight for our freedom and our rights here just like ... It's sad because most people don't know about it. It's one of the diversions going on but people don't really realize, I told my Dad about it last night because I just read about it, and he didn't even believe that it was true. I think a lot of people wouldn't believe what is going on right now. But, I feel so strongly that I have to do something about it so that later when I have no rights left I can't say I'm complaining, you know,

KC: Right, it's very true. So, I think you kind of touched on this with that your goal that was to make people aware and educate them but this question just asks what type of strategies does your group employ to influence either the local government or the biotech industry?

Kate Corrigan: Well, I've been bringing some flyers to the coops to try to make sure that people knew what was going on and, um, the coop today or the other night said that I couldn't have those flyers anymore 'cos they were rated controversial. I have to go talk to them today to find out about that. It really disturbs me as a coop member and I think it really goes against the coop, you know, what they stand for - their mission. So, I really have to talk to them. I think they don't understand. But, that's the main thing I've been doing and writing letters to the editor. I want to put on a film showing again. I'd really like to get some showings done at the high school, the tech center and the farmer ... 'cos I've noticed that farmers around here are very closed minded and even if they see the film, they don't believe it. ... watched it and he didn't even believe the bit about Rodney Nelson. He thought Rodney Nelson had probably done something wrong. And that is pretty weird. I think that if these younger people still in school saw the film, then they might be more open minded.

KC: It's true.

Kate Corrigan: So, I'd like to do that. But, like I said, I work full time and I do all that stuff on the side and I can't do as much as I want right now 'cos I have to work.

KC: So, you said previously, that you used to hand out flyers at the coops and they told you that they didn't allow it anymore.

Kate Corrigan: Yeah, that's just since Wednesday.

KC: Oh, wow.

Kate Corrigan: I just had them sitting there because I don't have time to stand there and hand them out. So, we had them set up near the door and now they are worrying that it is too controversial so they will only allow them if someone is there handing them out.

KC: That's weird.

Kate Corrigan: If I spend all my time standing handing them out, how do I have time to set up showings and do all this other stuff that is more powerful. I'm really disturbed about that. I'm going to try to go and talk to them and find out what the misunderstanding is.

KC: What contributes to the funding of your efforts? I guess you just personally use…

Kate Corrigan: Well, I have a copy machine here at work and my boss is MorganWolver and we brew organic beers. He believes in this just like I do.

KC: Right.

Kate Corrigan: And, he doesn't mind if I use the copy machine. So, that's been very lucky for me that I don't have to pay for copies 'cos otherwise it would really be costing me a lot.

KC: So, when you reserve rooms for a meeting or

Kate Corrigan: I use free places. The library is free and when I have to spend money. Occasionally, I've done mailings and I've spent my own money but sometimes at the movies I would have like a donation thing and I only made $50. So, I don't have a budget as you can see.

KC: Is there a certain time frame you are operating under? Like, do you have certain goals that you wish could be achieved within a certain time?

Kate Corrigan: Just the Farmer Protection Act which is the main thing right now. They might decide on that any day if they haven't already. I haven't had an update yet – if they've decided on that yet.

KC: Are you for the Senate or the House version of that?

Kate Corrigan: I want state liability in there. I like the Senate version. I don't care if it's changed a little but I want liability on the corporation. I don't want the farmer to have to prove the product was defective because I think that is impossible.

KC: Can you talk about the legitimacy of your goals and of the activists goals and do you think that – it's open ended – how serious do you think your goals are and are legitimate and how people should take them?

Kate Corrigan: Do you mean like is it legitimate concerns?

KC: Right. Like how serious.

Kate Corrigan: Let me tell you again. I don't see any issue more important to me than this issue and I'll tell you why. I don't care if it was World War III or if every person was dying. Because, people can get reborn but when you're altering DNA never before to be on earth and it spreads around all on its own with no regard to future generations and if this stuff does make people sick which I do believe it could do. I wouldn't be spraying something that even the remote possibility it would make people sick and then you look at the stuff that is not designed for food like the corn and that's just for making plastic or pharmaceutical. If that stuff gets contaminated and the food supply, there is not going to be any food that is healthy to eat and maybe that is being drastic but I think that if you look far enough down the road, it could really be a valid concern. I have a real problem with a company that is going to risk that just to keep the money coming in. That's why I think it is so legitimate and I know that other people feel the same way and that it is the scariest thing that has happened.

KC: Right. Can you make any generalizations about the people who are in your position and who are against GE. Are they mainly organic farmers? Mainly young people? Old people? Parents?

Kate Corrigan: Well, not many people know about it. So, I guess people that know about organics and that are sure of their group of communications, and people that are going to find out about it. Most people that I know don't know much about it and it's weird to me that I know the most about it because I don't know why it should be that way but like, when I tell my friends, I'm only 24, and they are outraged and they can't believe how wrong it is. They totally agree with me and yet, they don't do anything about it. I think that it is because they are so busy making money and watching movies that they just don't really don't get active. I guess most America is that way which is why it is really distressing.

KC: No, it's true -What's your prediction in the future of the status and liability of GMO's in Vermont? Do you think that the government will put more strict labeling laws or do you think that in the future that they will ignore the opposition of people and be more legalized?

Kate Corrigan: I don't think they can ignore it because we've done a really good job here in Vermont with people making an effort and you can see that people know they are concerned. I think that ...? If we're not keeping ... You can't just bury your head in the sand.

KC: Ok – last question - how do you define success or how do you define failure?

Kate Corrigan: I hope this bill is passed and the success I see is would be that it was still feasible to grow GMO free crops in Vermont which is what I want available. My ultimate dream is that they don't grow any more GMO crops in the whole world until some scientists really test it out and the scientists that have tested it out got fired and my real ultimate dream is for a government that doesn't put their personal monies into really testing it out and the public ….

KC: OK and that's it. Thank you very much for your time. I really appreciate it and it was really interesting hearing your views and I really appreciate what you are doing and your efforts so

Kate Corrigan: I hope I don't get too emotional but after reading that thing about the national animal id system yesterday, it really tore me up. Basically, it just took my whole conviction and …

KC: No, I know, it is a really passionate issue so I understand. Well, thank you very much for your time. I'm glad you're feeling better. Have a good day. Thank you

Interviewee: Joanne Cucinotta **In-Person Interview**
Interviewer: Kathryn Carpenter **NOFA Winter Conference**
February 11, 2006

KC: Could you please state your name?

Joanne Cucinotta: Joanne Cucinotta

KC: What is your view on genetic engineering food in general?

Joanne Cucinotta: I'm a little weary of them there's a lot of unknowns and I fear that over time when seeds become sterile people wont be able to grow their own food.

KC: Can you talk about the first time you heard about the GE free movement in Vermont

Joanne Cucinotta: I'm not sure I moved to Vermont about 2 years ago. And Vermont has been known for small local organic farms and just with folks here.

KC: Can you talk about which organizations or individuals pose a threat to the GE-free movement?

Joanne Cucinotta: Definitely Monsanto is a big name that's pretty well known there's probably a lot of other small things. Also like government organizations like Agriculture kind of promote big business and so even thought they're not a corporation I feel that that's a name to watch for.

KC: Can you talk on your view on the role of government in regard to their involvement with GE food?

Joanne Cucinotta: I think the government needs to protect the land and also the people. And like I said there's so many unknowns with GE foods that I think its their job to make sure everything's tested and safe and while proven before they just decide especially the fun things but they just allow that to happen.

KC: Have you made any lifestyle changes as a result of the GE-free movement? For example do you tend to be very conscious with the food you buy or?

Joanne Cucinotta: Yea definitely. I try to buy organic foods, local foods, things that I know or hope to know that don't have genetic engineering.

KC: Have you attended any events that are sponsored by GE-free activist groups that are opposed to GE?

Joanne Cucinotta: I don't think so. A lot of things like the NOFA conference and farmers market have tables and information and that I've taken the brochures and things like that.

KC: Are you a member of an established organization, an Anti-GE organization?

Joanne Cucinotta: No I'm not, a company that I work for Honeygardens we use a lot of organic herbs and things. And also cause we keep bees its really important that things aren't genetic engineered for the bee's health.

KC: What's your prediction in the future for the status of GMOs in Vermont? Do you think realistically that we'll get a very good official labeling system or that eventually we'll get rid of GMOs or do you think that's kind of unrealistic, its going to be hard to kind of sway the government and the industry?

Joanne Cucinotta: Yea I think the state government of Vermont is pretty open or not maybe open but in the future open to the idea and I think Vermont will probably be on a leading edge of that kind of thing. And hopefully we can get labeling but most products pass state lines so it going to be really hard to get a national program I think.

KC: That's basically it do you have any other remarks about the issue that you would like to share?

Joanne Cucinotta: No, but I appreciate what you're doing and educating people more is really important.

Interviewee: Nicole Degada **In-Person Interview**
Interviewer: Ryan Starbuck **NOFA Winter Conference**
February 11, 2006

RS: Can you please give us your name?

Nicole Degada: My name is Nicole Degada.

RS: And your Profession?

Nicole Degada: I am a flower farmer.

RS: Have you heard about the activist groups in Vermont opposed to Genetic Engineering?

Nicole Degada: Yes I have.

RS: Tell me about the first time you heard about the GE free movement in Vermont or just New England?

Nicole Degada: Well I was dating an organic farmer at the time and I guess I heard about it in concern of it affecting his crops because there was somebody very close to him who was using genetically modified corn and it would affect his crops and his organic certification.

RS: Do you know of any organizations or individuals who may pose a threat to the GE free movement in Vermont?

Nicole Degada: I don't understand what you mean.

RS: Do you know of anyone opposed to it?

Nicole Degada: No, not that I can think of.

RS: Do you know of the role in the government about the GE free movement and what they've done?

Nicole Degada: I'm a little vague about it, but it seems to me that they are very interested in it terms of big business that don't want labeling on GMO's. Which I don't understand. And I guess that's what I know.

RS: Have you made any lifestyle, or do you use organic food and what type?

Nicole Degada: I try to farm mostly organically. I do buy bulbs from Holland which are dipped in a fungicide, which is just standard issue because they are coming from overseas. I eat organic when I can, when I can afford to. I don't buy everything organic.

RS: Have you attended any events about genetically engineered food?

Nicole Degada: ***I have not.***

RS: Do you have any opinion about them? Anything else you want to say?

Nicole Degada: Just recently read a book called Nature's Wars have you heard of that book?

RS: Yeah

Nicole Degada: And I thought it was pretty interesting that it wasn't all negative on GMOs that there was some possibility of it being good. And I'm not sure about how I feel about the whole thing. But I do feel that things should be labeled and people should have a choice. It's like abortion people should have a choice. And everything should just be labeled properly and I'm not sure about the whole Frankenstein thing about the birds and the weeds and it seems like it's a large issue and there's not enough testing to put the product out right now. That's how I pretty much feel, there needs to be a lot more testing before they can just say this is safe. It's weird to be tampering with nature and affecting chromosomes. But at the same time if you can not use pesticides and change something chemically in the plant it could be a lot better, the planet in a whole.

Interviewee: Karen Delaney **In-Person Interview**
Interviewer: Helena Zec **NOFA Winter Conference**
February 11, 2006

Karen Delaney: …Food Co-op.

HZ: Talk bout the first time you heard about the GE-free movement in Vermont?

Karen Delaney: It's been so long because we try to keep informed about these issues. It's been literally years. I don't remember when I first heard about it.

HZ: Do you know how you first heard about it? Was it newspapers, or radio?

Karen Delaney: Neither. I would say publicly from co workers.

HZ: Okay. Talk about which organizations or individuals pose a threat to the GE-Free movement.

Karen Delaney: I think that conventional agriculture is the main problem in our current in my opinion our current administration support of conventional agriculture. That's where the problem lies.

HZ: What's your view on the government's role regarding this issue?

Karen Delaney: I think the government should stop being an advocate for industry. You know, I have a particular personal opinion about some of the major players, some of the major chemical companies. And it just it needs to not the government needs to stop advocating and let the legislature make their own decisions.

HZ: So how do you see that implemented, how do you see that change in the future.

Karen Delaney: I think that we need to we need to be in the core response in the nation for not only getting the information out to the individuals. But to be in it for our sake. Basically what I would like to think.

HZ: Have you made any lifestyle changes since you've heard about the GE free movement?

Karen Delaney: I will not, I try to only buy organic whenever feasible in my own life. I know I can't make that decision where I work for the customers. I have in the frozen section made the decision to get rid of conventional corn and only have organic. So that's one, and I personally will not buy any non organic corn or corn product.

HZ: Have you attended any events that are sponsored by organizations that are against GMOs?

Karen Delaney: I haven't basically because I haven't had the time but its not that I don't support the organization and the movement.

HZ: Are you a member of any established organizations that are against GMOs?

Karen Delaney: I'm a MOFA member and I assume that they are. I certainly hope so. I guess that's as good as it gets

HZ: How active are you in this organization?

Karen Delaney: I'm not I attend their, they're involved with …, but I'm not particularly active. I'm more involved with things on the local level.

HZ: How is leadership organized in this organization?

Karen Delaney: I have no idea I don't have a whole lot of ideas similar to MOFA only it's for Maine.

HZ: In what ways are your personal values reflected in the Maine I don't know. In what ways is your sense of self reflected in the Maine Organic Farmers Association.

Karen Delaney: You know it's kind of an organization that I'm a member of. I'm a member but I'm not an active member. I'm more active in things that happen in Vermont, so I really can't speak to that.

HZ: How would you define success and failure, I know you're not really an active member in MOF, but what would you like to see happen in the future.

Karen Delaney: I would like to see things continue to progress in Vermont and on the Vermont level on the west end of Vermont just so happens that because I've answered the question we've gone this peculiar route and its really not applicable to my day to day life. As far as Vermont goes I want to see it happen. I would like to see GMO's be gone from the state in its entirety never mind this little separation thing. I would like to see clear labeling, something …potentially contain GMO's can make an informed choice.

HZ: Can you speak about the enforceability of the laws that were recently passed? Like the labeling laws and the farmer protection act?

Karen Delaney: I think it needs to be diligent and I think it needs to be clear and I'm not sure on the feasibility of that how it would eventually come down. I would like to see greater support for organic because we know it's clean. And that's the main issue there

HZ: And why do you think the GE free movement is so successful in Vermont as compared to other states?

Karen Delaney: Basically because it's very, Vermont is primarily a rural state and people have a lot more connection with land with their food choices with their lifestyle and I think that's why people are more willing to participate.

HZ: Do you have anyone else that you think we should talk to or anyone that you recommend talking to?

Karen Delaney: If you can find Free-Ellis he's here somewhere.

HZ: And do you have any additional comments you would like to add

Karen Delaney: No that's fine.

Interviewee: Isabelle Gagnon **In-Person Interview**
Interviewer: Kathryn Carpenter **NOFA Winter Conference**
February 11, 2006

KC: Hi could you please state your name?

Isabelle Gagnon: Isabelle Gagnon

KC: What is your profession?

Isabelle Gagnon: Dairy consultant

KC: What is your view on genetically engineered food in general?

Isabelle Gagnon: I think that it should never be … (I think she meant allowed)

KC: Can you talk about the GE free movement in Vermont?

Isabelle Gagnon: That would be 3 years ago that Monsanto … on corn. Everyone that has Manseperti stuff.

KC: Can you talk about which organizations or individuals that you think are a threat to the GE free movement?

KC: People who are basically against anti-GE? They support Genetic Engineering?

Isabelle Gagnon: Even the GMO thing instead of me….

Isabelle Gagnon: I support them a lot. I like to go to conferences I like to go to speakers. I like to really support them on GMO's.

KC: Can you talk about your view on the government's role on what they're doing or not doing to prevent GE?

Isabelle Gagnon: They should do study before people have trouble in their health instead of pushing the …company for new stuff that do good in the field first Our body is not made to digest modified cells. I really don't think we have a GMO anyway.

KC: Have you made any lifestyle changes such as being food conscious on what you buy?

Isabelle Gagnon: Organic food

KC: Have you attended any events or conferences sponsored by Anti-GE activists.

Isabelle Gagnon: No I have friends that go but I'm not always in the country.

KC: Are you a member of an established GE group?

Isabelle Gagnon: No. Do I approve of GMO's?

KC: What is your prediction of the future of GMO's do you think the government will take them off the shelves? Or is that unrealistic?

Isabelle Gagnon: I hope before everybody gets cancer. But I don't think they will do it because they have too much money to push their stuff. They're big companies. Good attempt at winning….

Interviewee: Jennifer Granover **In-Person Interview**
Interviewer: Kathryn Carpenter **NOFA Winter Conference**
February 11, 2006

KC: Can you please state your name and profession?

Jennifer Granover: Jennifer Granover – I'm a marketing person.

KC: Can you talk about the first time you heard about the GE-free movement in Vermont?

Jennifer Granover: I think about three or four years ago.

KC: What is your general stance/opinion on genetically modified foods?

Jennifer Granover: I need to have more information – I'm a little bit uncomfortable with it, but I don't know enough.

KC: Can you talk about which organizations pose a threat to the GE-free movement? Who supports GMO's and who is against the GE-free movement?

Jennifer Granover: I think the support for against GE-foods is the organic industry-like NOFA, organic farmers. Those that support GE-foods tend to be more the conventional
farmers, at least that is what I think.

KC: Talk about your view on the role of the government and what they've been doing with GE-free food? Or just GMO's in general. Either federal or state.

Jennifer Granover: I think the government has got to sort of be a moderator – between the two sides – so that we can understand both sides. So we can sort of understand why they say what they say so I think maybe the government can be a moderator to find common ground for everybody.

KC: Have you personally made any lifestyle changes as a result of the GE-free movement? For example, do you only buy organic or make sure you buy GE-free foods or not really?

Jennifer Granover: Most of the foods I buy are GE-free foods. And I make sure the seeds I buy are GE-free.

KC: Have you attended any events sponsored by GE-free activist groups?

Jennifer Granover: No.

KC: Are you free of an anti-GE organization?

Jennifer Granover: No I'm not.

KC: What is your prediction of the status of GE foods in Vermont? Do you think

they are going to be put off the shelves eventually or not really – it would be hard to fight government and industry? Any type of labeling laws- what do you think the future status would be?

Jennifer Granover: I think if its going to happen anywhere in the United States Vermont will be one of the first places it happens because we're pretty progressive. I think there will probably be some sort of common ground of labeling and more public information on what it is and what it's not.

KC: OK, I think that's it. Thanks.

Interviewee: Aaron Kamash **In-Person Interview**
Interviewer: Helena Zec **NOFA Winter Conference**
February 11, 2006

HZ: Can you please give me your name and profession?

Aaron Kamash: My name is Aaron Kamash and I'm a Japanese translator and I want to get into seed farming too.

HZ: Can you talk about the first time you heard about the GE-free movement in Vermont?

Aaron Kamash Well its long before I lived in Vermont that we first heard about resistance to GMOs and that was probably about 10 years ago.

HZ: Which organizations do you think may pose a threat to the GE-free movement – or individuals?

Aaron Kamash: Definitely the major biotechnology companies like Monsanto. And to some extent the pharmaceutical companies too. And even possibly multilateral organizations like the world bank.

HZ: What is your view on the governments role on this issue?

Aaron Kamash: the federal government?

HZ: The federal government and the state government of Vermont.

Aaron Kamash: so can you be a little bit more specific with me?

HZ: For example, what do you think of the regulation? Like the FDA's policy on GE foods?

Aaron Kamash: I don't know specifically about their position but I think in general theres really not eough regulation. At a minimum there should be a seed labeling law and a food labeling law. So if we people can know what they are buying, what they are eating.

HZ: Have you made any lifestyle changes since you've heard about this movement?

Aaron Kamash: yeah, I mean, for a number of reasons I decided to Vermont, And that was sort of one of them basically. I wanted to try to live in a place where I could grow my own food.

HZ: Have you attended any evens sponsored by activist groups opposed to GE food?

Aaron Kamash: Not specifically, no.

HZ: Are you a member of an established organization?

Aaron Kamash: I'm a member of NOFA and I'll probably become a member of Rural Vermont pretty soon.

HZ: How long have you been a member of NOFA?

Aaron Kamash: About 3 years.

HZ: Are you very active in the group, and ifso, do you hold any positions?

Aaron Kamash: I wouldn't way I'm super-active- I do call them and tell them about issues I'm concerned about and I write letters sometimes and I definitely get their email, etcetera.

HZ: OK. And in what way are your personal values reflected in this organizations and what things do you not agree with?

Aaron Kamash: That NOFA is doing?

HZ: Yes.

Aaron Kamash: Oh, I'm totally in support of NOFA. Basically everything that they do sort of reflects the way that I want my life and my community to be.

HZ: What types of strategies does NOFA employ to influence federal and state government?

Aaron Kamash: I know that they produce literature and they organize demonstrations and lobbying in Mt. Pellier. Beyond that, I don't really know.

HZ: How would you define "success" and "failure". What would you like to see happen for the future, what are your goals for this organization?

Aaron Kamash: With NOFA?

HZ: Yes. With GMO issues and NOFA**.**

Aaron Kamash: What I would like to see is incremental progress made on this issue and I think that is reasonable. The next step is to pass the GMO liability bill in Vermont so that farmers can sue manufacturers and manufacturers will be liable for the damage that their seeds cause and then beyond that probably get a labeling law so that GMO foods have to be labeled and know what they are buying. And then – I guess that is a lot further down the road but I think that incremental progress is success.

HZ: I was just in the info session with Steve Kerr- I think I saw you there as well. He advocates coexistence- what is your take on that?

Aaron Kamash: its really not possible. There is this pollen issue and pollen drifts all over the place. And I mean, you cannot have organic crops co0existing with GMO's.

HZ: Any additional comments?

Aaron Kamash: I think that this is an issue that not only farmers be concerned about – I mean, I'm not really a farmer- I'm trying to become one because everybody is going to be eating this stuff. So you know people are going to have to wake up and realize that its not a farmer issue it's a consumer issue like even for people who want to a garden, like buy a pack of seeds and grow it – there may come a day when you can't buy the seeds you want because they are all owned by companies. So its important for everyone.

Interviewee: David Ludt | **In-Person Interview**
Interviewer: Kathryn Carpenter | **NOFA Winter Conference**
February 11, 2006

KC: Can you please say your name and profession?

David Ludt: My name is David Ludt and I'm a farmer and a builder and a carver.

KC: Can you talk about the first time that you heard about your general view on GE-foods?

David Ludt: It seems like a rather backwards way to go about to a way to getting a lifestyle from the soil. The way to getting a lifestyle from the soil to know it intimately and to work with it in the way that the season's rhythms happen and the way that the plant rhythms happen and working with it slowly and over time- that's how you change
species.

KC: Can you talk about the first time you heard about the GE-free movement in Vermont?

David Ludt: I have no idea when I heard about the GE free movement in Vermont- I heard about the GE-free movement way before I lived in Vermont.

KC: Can you talk about what organizations or groups that support GE foods and who are opposed to the GE-free movement?

David Ludt: Well, I know that all the major seed companies don't like what the GE-free
movement is doing such as Monsanto, Synerga- and all them people with big strange names.

KC: Can you talk about your view on the role of the government and what the government did or did not do with regards to genetic engineering.

David Ludt: The government seems to be the lapdog to the corporations these days. I don't have much respect for most of the people in the government who are jumping into the laps of the corporate seed monsters.

KC: Have you made any personal lifestyle changes as a result of the GE-free movement, such as what you eat, what you buy?

David Ludt: No, I've been growing my garden for a long time.

KC: Have you attended any events supported by activist groups opposed to GE foods?

David Ludt: No, I just tend to grow my garden.

KC: What do you think is the future of GMO's in Vermont and what do you think the status is going to be with regards to labeling laws and just being able to be sold on the market?

David Ludt: I'm concerned- it seems like the WTO doesn't like what Europe has done in
keeping GE-foods out. It seems like our agriculture secretary seems to be also sitting in the lap of the corporate guys instead of listening to the whole state and the farmers and the people living here. And I would say most people don't want it. And it seems like the government is going to force it down our throats anyway.

KC: That's about it, any other closing remarks?

David Ludt: No.

KC: OK. Thank you very much.

Steve Kerr: Not exactly a cross-section of the American opinion

KC: Noo. Kinda one-sided

Steve Kerr: What the heck

KC: It's still interesting…ok so what is your overall opinion or view of the issue of GMOs in general?

Steve Kerr: In general I think that is a useful and productive, "mixed-up?" new technology, particularly agricultural technology. We're moving in one step back, Kathryn from the kind of a near-term political wars. I think we're moving from very very heavy dependence on synthetic chemicals and as you know began from the innovations of WWII into another era…and, there's one who thinks that synthetic chemicals are probably the least beneficial agricultural innovation of the 20th century. The sooner we rely less on those, the better. Obviously biotechnology gives us an opportunity to find other ways to deal with pests, opposed to synthetic chemicals.

KC: So you think it will help the environment by preventing chemicals?

Steve Kerr: Oh, absolutely, no question. In Vermont, I'll give you a couple statistics; we're not a corn state, we're a dairy state but almost 90,000 acres of corn, almost all entirely grown for livestock, we use atrozene historically in its chemical cousins for wheat control. Atrozene is an EPA regulated compound but we find residues of atrozene in drinking water wells.

We know glycosate, which is the chemical that's been, we can use because of GE technology, is both far less toxic to the environment and breaks down, it biodegrades very quickly so we don't find any of it in water wells so I've got a really clear biological indicator that we moved from harsh chemical to much much less harsh chemical. We couldn't have made that switch without GE.

KC: Right. Ok well. What's your opinion about the development and progress of the GE-free movement in Vermont? And just how that evolved, like the public reaction to it.

Steve Kerr: Public reaction?

KC: The public reaction and the evolvement of the GE-free movement, like the social movement against GMOs

Steve Kerr: I'll give you a, just a couple of perspectives.

KC: ok

Steve Kerr: when we look at what are called internal polls, umm Vermonters don't show a lot of interest in the GE-free movement.

KC: ok

Steve Kerr: There is a group of people who care passionately on both sides of the issue.

KC: right

Steve Kerr: But the average Vermonter hasn't shown a great deal of interest, according to the polls, now obviously if you ask Vermonters you'll find some people who do and some who say "huh what are you talking about", but when you look at these polls of a thousand plus people, it's not found on the radar screen.

KC: ok

Steve Kerr: yeah

KC: ok that's interesting. We weren't sure of the scope of it and that's what we were trying to find out too. Is it just the farmers? Concerned consumers groups? Is it just parents concerned about the health of it or..

Steve Kerr: There's a very dedicated band of activists. And they tend to be organic farmers.

KC: right

Steve Kerr: The activist I think have a different agenda I think than organic farmers but their interests overlap. Then in the spectrum, of course you have the companies with very different views. I think most Vermonters, if they're even aware Kathryn, they're kind of scratching their head and trying to understand what's this controversy all about?

KC: right

Steve Kerr: You know we're not a, as you particularly know you two, we're not a terribly literate society scientifically, but to get into something, as you know that's kind of an ultimate biological question, it's very difficult since most people don't understand basic biology, much less genetics. For them to…so in regards to the GE-free movement, I think the movement as misrepresented both the science and technology and I think they've gotten away with it to be blunt because most Americans DON'T have a great ground in the science; so it's not one of those cases where the average American can say, whoa I can think about this myself because most folks just don't have that background.

Now… what I can further say is that puts a premium on the obligation that everyone who's a part of this debate has to be truthful. And I think we spend a fair amount of misrepresentation, as a way kind word, probably both ends of the

spectrum; the companies have exaggerated; the activists have exaggerated. It's not led to a healthy, it's not led to an elucidating debate…in Vermont…maybe elsewhere.

KC: So do you think that results from, um, just say the GE-free activist maybe their lack of, some type, a degree of ignorance biologically; they don't know fully the implications of it; if that's why they, you're saying they disagree with it?

Steve Kerr: I, I can't answer that Kathryn, because A, I never comment on people's motives

KC: Well..i didn't…yeah ok

Steve Kerr: And secondly, I'm a lousy mind-reader…so I don't know.

KC: ok

Steve Kerr: There's clearly. There's clearly some ignorance.

Steve Kerr: I don't mean that in a critical way.

KC: Yeah I don't mean that in a disparaging way; more of a they don't realize, they don't understand the whole, well...they're fighting for something they don't understand the whole picture about.

Steve Kerr: Right… exactly. I think that's a very good way to put it. I think they are sincerely fighting for something; I do not think they understand the..what wha, I think they understand the what they're fighting for,

KC: right

Steve Kerr: I don't think they understand the issue.

KC: ok...ok

Steve Kerr: That's not unusual in American society

KC: Right..um, can you talk about the role that the Vermont government has and what kind of impact they can have um despite the fact that the federal government has already ruled these substantially equivalent, so what can Vermont government do?

Steve Kerr: Let me shake your hand

KC: ok
Steve Kerr: That is EXACTLY the right question to be asking which is never asked by the activists, and of course it carefully avoided by the companies.

KC: right

Steve Kerr: Because the companies have taken care of their issue in Washington; this is a Federal issue.

KC: yeah

Steve Kerr: The Federal government, both under the constitution and under, just history in this country, has the prerogative and the obligation to regulate these kinds of technologies. It's chosen to approve them; its chosen to license them; and its chosen to regulate them. So you have like so many things that are controversial in this country, pharmaceuticals for instance, you have a legally approved regulated product.

KC: ok

Steve Kerr: Vermont has very very little running room, none of the states have much running room. So we end up in yes...we end up in these, what I think are everybody, regardless of your perspectives rush debates b/c I don't think that everybody understands that, even if we got to some consensus; if its outside of what the federal government will allow the states to do, it's irrelevant.

KC: right

Steve Kerr: So…we can make a big noise and in society that's important thing to do at times, I think its very important to speak up and speak out; I think its important they be careful with what they say and I think its very important they be truthful. It's also important they understand under the constitution what you can and can't do.

KC: ok…um…can you briefly summarize your stance and the implications of the Farmer Protection Act?

Steve Kerr: Sure, sure. There are two bills in our legislation now. And I think as far as the debate in Vermont has come down to two bills, both of which report to protect farmers. OK which is not a question, Should we hold farmers liable or not? No, Every party has agreed no, farmers should NOT be made liable for this, or for any of the technology that is appropriately used.

The bill in the House of Representatives allows the plaintiff, the farmer in this case, to report under a whole array of legal causes of action; absolute liability, strict liability, product liability, negligence, trespass, a whole range, and also allows that plaintiff to make his or her claim for compensation for GE products, for tractor parts, for herbicides, for all the array of inputs the farmers buy. So, not only does it give farmers a very *broad* set of categories for causes of action under which to sue, it covers all products the farmers buy.

The Senate bill, which is the one that is supported by the activist here today is a *very* narrow bill. It limits the farmer to strict liability as a cause of action. And it limits the farmer's product array to GE seeds. The state's leading trial attorney has said intestinally, why would we ever pass this Senate bill? The bill being promoted here today. It takes rights away from farmers that they have today.

Vermont has a curious federal district ruling called the 'mainland tractor case'. That case was settled several years ago, had to do with a farmer who bought an herbicide. Buy the herbicide for your corn product. The corn crop...failed, because the herbicide did not work. The farmer went to court and said, I want to be compensated for my crop loss. The company said, woah, the limitation of our liability is the replacement cost of the herbicide; we'll give ya a hundred bucks. He said woah woah

wait a minute, I lost a many thousand dollar corn product. Te court's decided in the farmer's favor and said, even though Mr. corporation, your limitation of liability was clear on the package, and limited your liability, you thought, to the cost of replacing the compound, it was the failure of your product which costs this farmer his crop. This farmer can put on his case; and that's what the House bill would allow. The Senate bill would allow; but the House bill will allow a much broader range of causes of actions in products, so if you choose between the two bills, it's a slam dunk to go with the House bill.

KC: ok

Steve Kerr: The question is, to be very blunt, why are people pushing the other bill? The other bill is very narrow-minded, is is it takes rights away farmers have under this mainline tractor ruling, and many people in the state have concluded that the so called Farmer Protection Act is NOT very much about protecting farmers; it's about stigmatizing the technology. Because if you are REALLY after farmer protection, why wouldn't you go for the expansive bill with all the causes of action and all the products farmers buy. What's the big deal just about strict liability just in GE seeds, unless this is really just about GE seeds.

KC: ok umm do you know what steps have been taken or that could be taken, are there any steps that could be taken to prevent GE contamination with genetic drift and pollen drift?

Steve Kerr: One of the great controversies amongst the activists is this whole issue of co-existence. You've probably heard many people say, "it's just not possible." Well…that's… not true. Farmers have co-existed for years. If I farm, whether it's conventionally or organically, I may have wheat seeds on my farm; maybe I'm just sloppy and I don't control my weeds; those weeds are gonna go to seeds, that seed is gonna blow or be carried by birds onto your farm. Have you sued me historically for that? No. If my herd is infected with brusolocis and somehow that organism, which is a bacterium, infects your herd, do you sue me because the bacterium came from my herd? No.

I could go through a whole long list, Kathryn, farmers have co-existed, literally for millenniums. There have always been movements through nature of things that I don't want, you don't want. For a group to say, this, it's different this time, it's *not* different this time. So, yes, co-existence does work. Is co-ex… can you set your standard zero contamination or zero tolerance? No. In engineering, are there tolerances for materials?

RS: Yes

Steve Kerr: Always. You don't build a bridge to such a standard that it will withstand every possible earthquake. We just decide we're gonna take some risks.

RS: yeah. Like 98 per, it's like 98% or something close to that.

Steve Kerr: Right, agriculture's exactly the same way. If you look at a bag of hybrid corn seed; forget whether it's organic or not. By law, 5% of the seeds in that bag can be something other than that hybrid. If you look at the organic standards for pesticide

residues, you can have an organic tomato that has pesticide residues up to 5% of EPA's tolerance for conventional foods, in other words it's non-zero tolerance. It still is organic, we don't have to disclose whether it has or may have 5% of EPA…...

They set this standard that is completely, everything else we do in agriculture and frankly in every other industry in society. That's why they can make the claim, co-existence is impossible. If you accept the notion that zero-tolerance is achievable or even desirable, then they're right. But, it's not achievable I don't think it's necessary, therefore I think it's a false, false standard. And it's created this war, needlessly. Yes, we can co-exist.

……and I are going to Boulder in a couple weeks for three days, the future we trust is hosting people around the U.S. who are interested in co-existence. We're gonna get there because we're gonna have to get there. This group, and I say this group because I don't mean everybody here, the activists are are now saying publicly in Vermont 'well we know that these compounds are here to stay.' Ok that's not a value statement in my mind, it's just a recognition of reality. If they are here to stay, shouldn't we be talking about co-existence? Because you can't ban 'em. If zero tolerance or zero contamination as you put is not likely for it to be the case, why aren't we spending a lot of time trying to figure out how to minimize through the risk analysis you do a bill...and you do an experiment in biology you try to control for every single variable along the course, and you're very very careful but you know where your tolerances are. And we know where they are in agriculture too. Because we've had tolerances for millennium that are bacterial that are viruses that are seeds and it goes on.

KC: Right. So you would rather activists focus on minimizing contamination opposed to trying to achieve this undesirable elimination of ..

Steve Kerr: Yes. This is such an unproductive and ultimately fruitless effort but it's politics in America. And it's part of the.., I think what's going to happen, Kathryn, is if we move through this phase where everybody had to be angry; the activists had to be angry and the companies had to be angry; and eventually, as we always do in this pluralistic society, the two extremes are going to burn themselves out. And the rest of us who've hopefully trying to keep some of our powder dry, will sit down and say 'fine are ya done?"
KC: right

Steve Kerr: Are ya done? Let's get serious about this now because we've got a real economic issue here. We do not want organic agriculture to be hurt. But if your definition of hurt is zero...it's gonna get hurt. You've already conceded at that point. Let's perhaps define tolerance as the Europeans. For instance perhaps you know, they are working aggressively at co-existence. Secondly, they've already come to grips with the tolerance issue. They allow a food product, a food product to have to $9/10^{th}$ of one percent GMO content without being so labeled. It's a tolerance. They're way ahead of us. And...they offer some answers for us as well; which is the good news.

KC: Do you agree with the FDA's ruling of substantial equivalence?

Steve Kerr: ooo if I agree. That's an interesting question. Um I have a degree in Karatomy? and a degree in English. So my scientific training tells me… yeah, they called it equivalence which is different than 'it's exactly the same.' And the fact…

KC: Right so... they use “substantially equivalent”.

Steve Kerr: Exactly...so I think that given how we practice science in the western world, scientific procedures, they they’re correct because they’re they’re argument is simply that look, these proteins that are being produced through genetically engineered plants are not novel proteins. These are not creations of the laboratory. These are proteins that evolved in nature, have existed for millenniums in nature and been consumed for millenium by human beings.

So their argument is, if we take a protein, everybody loves the fish in tomato thing in Calgene, well it was not a fish gene by the way folks sorry, but that’s OK, it makes for a great story. Let’s assume it’s a fish gene…no I’m not because this is what makes it so important, this is what’s been wrong with this debate, its people have been, they’ve both been vindacious and they’ve been careless. ..When you take a gene from agrobacteria, probably the most common soil microorganism, and move it into a plant such that that plant can produce the same protein…that agrobacteria produced, I think you can understand why FDA says ‘substantially equivalent” because if agrobacterium is natural, if it’s environmental, if it has been consumed for millennia by humans with no known ill effects, there’s no reason to believe that that same protein produced in a plant is going to produce ill effects. Now we know that where you insert the gene and the promoter in the genome, is important. But they’ve not determined that it’s important for human health. It’s important with regards to how much the protein is expressed. So if you’re lookin for gene expression, where you insert it, is terribly important.

They, well of course technology has moved from the gold dust cannon “BOOM” into a tobacco laden ‘woops’ who worked into as you know, other techniques that are more precise. I and I remind people that traditional agrization which has been used for thousand of years in which all life, all life as we know it, and the human race now depends, is genetic ,,,cation? We move genes all around. Of course the criticism is, yes but we’re not moving genes across the species barrier, aaaand, that’s true. Traditional hybridization works within the species. But again, FDA has said, ‘if the protein is a naturally occurring protein and we got thousands of years of kind of human metabolic experience with this, why wouldn’t you generally regard it as safe but by substantial equivalence.

When we move, Kathryn, in two different directions, if we are able to create novel proteins, truly novel, none of the proteins have been approved by USDA are novel proteins, that’s a different matter. Secondly, even if we are taking these uh common proteins, if we’re moving proteins into, if we’re moving genes into plants that produce proteins that will allow us to produce pharmaceuticals in food products or produce plastic compounds and silicon. That in my mind is worrisome. Again, we know how the proteins are likely to react but we don’t eat plastic compounds as a general rule. Sooo and we don’t, we should be very worried about the over-prescription of antibiotics because we certainly don’t need that in the food supply. And even though we know that you can develop a system to ensure that corn that is grown to produce an antibiotic never ever ends up in the food chain; you got the *starlink* issue. There was nothing wrong with *starlink*, it just got into the wrong marketing well that’s human error, there’s always gonna be human error.

So I think there are some boundaries, but we havn’t gotten there yet. And I think, I think the activists would have been much brighter to aim their fire at what’s called PIR pharmaceutical industrial uses of food products, and maybe worry about

truly novel proteins as opposed to arguing that oh my gosh we're all going to get ill by…proteins that are not novel. So yeah, a long way of saying I think FDA, given western science, was warranted in drawing the conclusion in setting up the regulation as it did.

KC: ok um some people argue that, there's a perspective of people who are anti-GE is, that they feel it will limit diversity, just biodiversity in general and that if they select for a certain protein or certain gene and keep making that all of a sudden you limit the gene pool and you'll lose traits that maybe later down the road through evolution or through just changes in the environment, may be useful. But they may be lost through genetic engineering if you just keep selecting for the same genes. So what do you, what's your opinion on that?

Steve Kerr: Well...it it's it's a conclusion that's not warranted by the facts. Uh USDA in other countries have seed banks as you perhaps know. They renew those seeds so they don't die, yes, so they're smart enough to know that. And, that's how we maintain diversity. As a a matter of fact, anybody can go to USDA seed bank and quote on quote, take borrow, you know return em, basically some germ plasma and then work with those genomes. But USDA maintains the seed bank for that very reason.

KC: They keep making more of them?

Steve Kerr: Oh yeah, exactly. They, as Tom could tell you, it depends on of course the size of the seed. So they're always replenishing. The corn seed lasts, can be viable, for a good solid five years so they're gonna replenish that in three years whereas some small seeds, you know, we have to replenish them every year so yeah there's a program … I think in fact the Federal government will be wise to be more aggressive with that program. They're maintaining the basic lines…as we know the, we managed to drive to extinction species everyday on this planet. We also know of course the great story of uh the drugs that have been discovered in the Brazilian rainforest. So I think that probably, the government would be wise to focus on those kinda connections. But I think for the folks to draw the conclusion that genetic engineering is going to either lead to the ownership of the seeds you know by Monsanto; that's not true. OR, to the loss of diversity is not true either. Not, at least in commercial agriculture. In the wild, it's not a question of genetic engineering, it's a question of development pest-science and stupidity in our own race.

KC: For the labeling law, I think um this question was touched on before but with um, is it just seeds or food products. I think you said this before.

Steve Kerr: It's just, it's just seeds because in the U.S., the states cannot require food product labeling, only the feds can do that.

KC: OK

Steve Kerr: So, we can require seed packets to be labeled…because...the states all have seed laws and have had seed laws since the early 1900s so not only is it legal but it's a heck of a precedent. But the U.S Constitution of commerce clause, bars the states individually from restraining trade in any way; and through many many many

many corporate tasks, it is been determined by the U.S. court system that you can require a special form of labeling for products sold in your state as opposed to the entire United States that restrains trade.

Because what the companies have successfully argued to the courts, and this has been done over the decades, is that it raises my cost; and anything that raises costs restrains trade. And obviously to an activist they say 'uh yeah the companies…trajecting?….. the cost" and I would, I would not disagree with that. That's NOT what the constitution of course has said in this country. So again, this is a federal issue. If the activists want food product labeling, they have to take it to congress.

KC: Ok but is seeds. Is labeling of, seeds can it be a federal thing opposed to the foods...

Steve Kerr: The states, all of the states have seed labeling laws with regard to.

KC: ok state power can do that.

Steve Kerr: Purity, % germination, % weed seeds, that kinda stuff. Vermont like every state, as a matter of fact, as you can appreciate the states have gotten together and there is a model seed law. But when you get to GE, there's no reason, from an agronomic standpoint, to treat GE traits different than the fact that, any other trait. What a farmers historically wanna know, if I pay a hundred dollars for a bag of seeds, are 95% of those seeds what I thought I bought or only 75% of them? And really it's a consumer issue as much as anything else because I don't wanna plant my farm and find out that these seeds were not good whether its viability or variety. So there's those are very practical economic questions.

Genetic engineering speaks to traits; it doesn't speak to germination rate; doesn't speak to weed-seed percentage, so entirely different category. But what we did with our seed law is, we amended our seed law so you now as a seed purveyor have to tell me germination rate, percent weed seeds, variety and yet it's a GE seed you have to tell me that it's a GE seed. You have to tell me which traits you have incorporated into that genome. Because…I'm interested but not terribly interested in knowing that it's genetically engineered that doesn't tell me much. I wanna know what you've done with it; what are you trying to accomplish here.

KC: I think, well do you have anything else? Ok thank you very much…

Woman: What I expected to see was what I saw the army worms, the army worms moving from the grass to the corn and then just dying it was like 2 blades and dead. It was like oh great. Cause I'm totally prejudice against this technology…I will never…what I expected to see was the same, I expected that this would be a tool where somebody could come in, plant a GMO one year, reduce the corn-root worm numbers, then they wouldn't have to pay the ya know whatever prices of seed, the hundred and forty dollars a bag or something. And also with this technology, don't be fooled, they're still using a pesticide. If a farmer chooses to control corn rootworm without rotation, they're either doing a pesticide or a GMO with a pesticide that's their other choices.

What I saw from my numbers though…they have to use this year after year after year. It just kinda protects the plant while it's growing. It didn't reduce the numbers, they are all over the place; so ya know it does noting as far as decreasing this pest. I don't see it as a savings at all because it takes, it's another tool to take farmers away from rotating and that's always where their biggest savings is, that's always where their biggest yields are, on so many farms, so when people are claiming to you, I just want you to be aware this is somebody who saw it on the field and have probably studied it, next year although I'm getting really nervous about exposing myself to that much GMO pollen. I noticed um a much stronger reaction, um I had a much stronger reaction to the pollen this year and I got quite sick after it and I don't even know if I can do the work in these fields.

Um and I'm one of the few people in this state who actually believe "___" is for corn-root worm and has for years. But, ya know the problem is it's taking that reason to vacate away; it's drawing conventional farmers away from substantial practices that will reduce nutrient loading which we all need to do um and I think that the claims that you're hearing, I don't know if it's all true. And that is from what I have been seeing. So you should be aware of that.

Steve Kerr: I appreciate because what I have learned from this issue is the claims of both sides are sometimes exaggerated.

Woman: So I would love to send you my corn scouting data and I have all of that because these are all hard facts.

Man #1: Second hand smoke is noxious, hardens your heart or whatever; and um has to be controlled. And they can do it legally, and they did it legally. Um so uh I don't even know whether this has been discussed early, but I have been seeing that as an analogy and society can say and be in justification in saying just how second hand smoke should not be put on to a non-smoker. So the contaminated pollen drift should not be allowed to go onto people's fields and then that the penalties is there are actions to for non-compliance but but I don't even want to get to the penalty part, I want to look and and point out that society has said there shall be no second hand smoke. Society then has the right, using the same model to say there shall be no pollen drift, if it's contaminated with stuff that is noxious to an organic compound. To me uh it's much the same legal principle.

Steve Kerr: I'm gonna do my best to uh answer that cause I I think that in my mind in 3 years the most compelling question that that I've had put to me on this. Um I don't think the gov…there is no scientific dispute in this country with regard to cigarette smoke, tobacco smoke, as you know, even the tobacco companies acknowledge that it's a harmful drug. There is no scientific controversy in this country regards to mercury...there is no…even an extremist from the mercury industry will argue that mercury is not toxic; you can say that about lead; you can say that about nuclear radiation, there's quite a long list. But I think we can all agree. There is no such consensus with regards to GMOs. There's absolutely nothing.

Man #1: There is amongst organic farmers.

Steve Kerr: Yeah but let me finish…you're right. The difference is this…in the case of cigarette smoke, there have been health professionals that argued what organic farmers today argue about. ……..We have reached the point in our society where the tobacco companies have acknowledged, they don't just walk away from the issue, they acknowledge that smoking kills. That's because the scientific community has said look, there's no scientific dispute anymore about this. There is, a dispute within the community with regards to the danger or lack there of GMOs.

You may not feel any doubt, there are many people who doubt the argument that the activists are making now. And in a democracy that is the very difficult place to be in because we either see the law or science, sophisticated science, we've all have intuitions we all have gut feeling, we all respect our own sometimes we respect other people's. But it is very difficult in a pluralistic society to go with a gut feeling and make a decision; you need to have something slightly more objective; so in one regard, we have a constitution that says you can't deny people due process for instance. No matter how much you hate Adolf Hitler, if had he not killed himself, he probably would have got a trial. And a lot of people woulda said what a waste of money. But he would have got a trial. With the case of mercury, we just finished how another campaign to collect mercury barometers…on dairy farms. Um they're sitting there and as long as they don't break, they're relatively safe but they do volatilize over time and if they break it's a disaster. Because there is no discussion, there is no controversy over mercury and its danger. There is disagreement with regard to the danger or lack there of GMOs.

Man #1: The point that I wanted to make was that society can in fact when the scientific proof can um ya know gains the upper hand, society can in fact say thou shall not..

Steve Kerr: Absolutely. You're absolutely right and that's why we've done that with smoking as you mentioned, that's why we've done it with mercury and lead and other known product…

Man #1: So now it's the question of how do we marshal the scientific evidence or at least seek it out? Um and what is the critical number I mean on one hand you got organic farmers who say it's already proven to us. You are starting to get defectives from the chemical industry who are saying, I don't think this is going in the right direction so uh what touchstones, what measurements do we use to say, ok the balance is now tipped over; because remember for years smoking uh, it was long

proved to everybody except the smoking companies, tobacco companies themselves. And I don't want to get to the point um with this that it will be long and proved except to Monsanto and the companies itself.

Steve Kerr: I would appreciate that and because of my perspective on...um I will simply say that those opposed to the technology of genetic engineering might have spent their money more wisely on this kind of analysis that you're suggesting than on full page adds in the Burlington Free Press and probably in other states too. Alright, just an observation.

Mediator: There are a lot of people with hands up but one thing I just wanna briefly interject on this analogy also is that there's a lot of practical issues with the analogy between the tobacco and the corn pollen. Tobacco smoke doesn't go that far before it's out of where someone would inhale it, number one. Only the closed conditions can you not smoke near somebody because it stays there. Corn pollen has neither of those conveniences; it blows very far and it's out in the open of course because this is all done outside. So, but a good analogy, although I think those two points point out that the corn pollen issue in transfer is that it is even harder and not as simple but…let's go to Andy in the front.

Man #2: Uh I have some questions, one that I'm actually relaying from somebody else um and she wrote that, she's not gonna be here but wanted to ask this question, every farmer in the state is required to have, in their farmer liability policy, to have a farm chemical transportation plus and to pay for $25,000 plus liability for the costs and risks of transporting chemicals. And here is, ya know, it's not a huge portion of the premium, but it seems like an unreasonable thing to require organic farms who produce none of these hybrids and chemicals, to none the less fund the risk pool of people who are choosing to use the chemicals. Uh so is there a way to work out this issue?

Woman: only in Vermont?

Man #2: Uhh I remember a discussion from uh my memory is goin blank on this, I remember a discussion from eight years ago from somebody in MA who said they managed to get, thought she had said they insured but maybe it was the state that changed its ways and not have to require farm chemical transportation as part of the

Steve Kerr: And I think that's a very practical question. Because we may or may not be moving in this country with true risk-based premium….same as the issue with people who lead healthy lifestyles don't feel they should have to pay as much for their health insurance as people who abuse their bodies. And I think the analogy is to something like that, if I don't use toxic compounds on my farm then why am I, as you say being forced to fund the pool? That's a very practical message to bring to the legislature. That's the kind of legislation that can be introduced quickly. That is an objective debate because we don't have to worry about science and emotions and intuition and all this kind of stuff. It just comes down to how the companies feel and how the legislature feels and good old things in politics…sure

Man #2: So my question for you is that um as you know the organic agricultural sector and as you suggested at the beginning, maybe the fastest growing sector in the

whole state economy let alone the agricultural sector. Umm dairy as a particular, despite the first year ….

Steve Kerr:…… (Talks about market share and economy)…. "with all due respect, all the energy, all the time, all the money that's spent on something like GE, in my mind, and I'm not being disrespectful to those who have strong feelings, pales in importance to what you just brought up; how quickly can we grab market share because if we don't grab it, we're not gonna get it in ten years. Not easy. And not at the price we can get it today. And our farms are going to be more profitable if they get in from the so-called ground floor then they have to buy market shares.

Mediator: Great question let's get some more. Also about 9% right now of dairy farms in the state are organic, ok.

Woman: 9% by farms?

Mediator: 9% by farms.

…….

Helena: Can you talk about the enforceability of GE seed labeling law?

Steve Kerr: I'm sorry

Helena: How enforceable is that law?

Steve Kerr: It's entirely enforceable and it's entirely enforced. In many of the cases we require the companies in November or December to submit to us all of their labeling material; it changes a little bit from year to year if you look at once a year. Then we have their trade rep, trade association reps come visit us generally in December and review it and we say, look do you think it meets the labeling law or does it? The attorney general's opinion to date is all up to the letter of the law; it satisfies the activists and what they'd like to see but meets the level of the law in democracy we have if that's your standard. What we told the companies is this; where you got the PIPs, the plant incorporated protectance, those are the ones that have pesticidal action like Bt corn; you got EPA rules that govern those labels and those are very very clear. No they don't say genetically engineered. But they don't have to in my mind. They use words like "transgene", "transgenic" and those type of terms, in my mind quite frankly probably what is relevant and important is the attorney general says that's as far as we can go as this law is written. But where you get into the ...products, the roundup ready, EPA does not govern those labels at all. And even though they use words like gene and transgenic, they use it as much…and what I said to them is looks guys, and we choose pioneer cause pioneer companies' documentation's the clearest by far um…in 2007… the language of all these products whether it's a herbicide or…we're gonna give them a clear standard here and if you don't like it you better speak up now because we're not going to let you drift further away from what has been very very clear disclosure. But from a native perspective, I think we enforce it to the extent that we can…the executive should never, can never go beyond what the law allows

Helena: But say the farmer's crops get contaminated with other seeds, how would you control that?

Steve Kerr: Ohh I see, thank you for clarifying. Interesting question. Vermont's labeling is about the seed itself. It's about the seed; it's not about the end product. Europe has some product labeling laws and they require a product that has more than $9/10^{th}$ percent of GMO content to be labeled as such. If it has $9/10^{th}$ percent or less, it does not have to be labeled as GMO content in that product. The Europeans are a collection of countries; they are not a collection of states. Under our constitution, it's not permissible for a state to require that kind of labeling, that's reserved under the constitution to the Federal government's clause.

It's the same problem Vermont ran into with VSD labeling about ten years ago when we passed a law that said that you gotta label ...with VSD. The second court of appeals which is just the step before the Supreme Court struck it down and said what are you crazy? This is a clear violation of congress clause. So when the question of food product labeling comes up in Montpelier or Sacramento, it's just a non-start because neither our constitution, again, right or wrong, like it or not states that we can't go over; the Feds can, the federal government can.

Mediator: We have time for one or two more questions

Woman: I'd just like to make a comment that in working with the conventional farmers, um the present literature is not very clear on what's genetically modified and what isn't. Um with what I've been noticing is with my farmers, my conventional farmers, wanted to stay away from the technology and end up planting something that was the technology; that he was told, it was not a GMO technology, it was something else. And um it wasn't til I got all the information he gave me and I realized they were talking about refuges and whatnot that this is clear in all your GMO.

So even with the current labeling laws, what I'm seeing with my groups of farmers who are conventional but maybe they might have an organic … or something so maybe they're trying to stay away. It's it's still not clear to them. They're still having a very hard time; there's um a lot of hiding going on; there's a lot of fear; um and it's still not clear even though the people who aren't necessarily against trying to avoid the technology, they don't know and I've seen that over and over again with my dairy farmers.

Steve Kerr: My feelings…I appreciate that and I hope you continue to work with them. Like I said in the first session, ten days

Woman: I'm just saying what I've experienced this past year; we're having a hard time

Steve Kerr: And I hope you keep working with your dairy farmers.

Woman: I do

Steve Kerr: One of the. There's a lot of passion said on both sides of this issue.

Woman: I'm just saying what I've experienced; I'm not making an opinion on it.

Steve Kerr: And I know you're all of kind hearts and sincere intentions but those of you who who make statements that farmers are being duped and farmers hear that; what they hear is, well you don't think I'm very bright. And that may bring a very visceral reaction on their parts.

Woman: I'm just saying that…we all think we're bright, these are very bright farmers. It's just ya know a couple farmers, these are top-notch farmers, these are farmers who hire crop consultants for the last ten years without any subsidy; they're not in equip. They're doin everything themselves, these are good farmers. And they're saying to themselves, if I can't even figure out the labeling…they're not saying they're being…I don't think they're saying people are being forthright in this country because there is a lot of politics involved. So even with the labeling laws come in, it's still, it's still not clear and it's problematic in the conventional, with the conventional people so I can't help but think how problematic it is for the people that are really against this technology.

Interviewee: Annie McCleary **In-Person Interview**
Interviewer: Kathryn Carpenter **NOFA Winter Conference**

February 11, 2006

KC: Can you please state your name and profession?

Annie McCleary: Annie McCleary and I'm an herbalist and I direct wisdom of the Herbs school.

KC: What is your general view of GE foods?

Annie McCleary: The sooner that they are completely gone Vermont will be better.

KC: Can you talk about the first time you heard about the GE free movement in Vermont?

Annie McCleary: I can't remember the first time. I'm not sure I've been touched with this for a very long time. Since the beginning I'm sure.

KC: Early 90's?

Annie McCleary: At least, probably before that.

KC: Can you talk about which organizations pose a threat to the GE free movement?

Annie McCleary: Which Organizations?

KC: Organizations or corporations that pose a threat to the Anti GE movement such as groups that support GE?

Annie McCleary: I don't know.

KC: Can you talk about your view on the role of the government on GMOs? Local or State.

Annie McCleary: Again, I don't work on these levels. I think of grassroots as what we do. You can just let people know that it's not something that people can change. It's really doing incredibly amazing harm to the gene pool of the plants that we are trying to eat. Anything that we can do to influence the government to get a handle on it.

KC: So you think they're being more lax or not involved enough.

Annie McCleary: Given the government is what it is. It's a big boondoggle doesn't as … to reality that we need to pay attention to. I don't put a lot into this talk. I think that we're more … theres a lot of issues the government isn't paying attention to. Mother earth is paying attention. Mother earth will take care of what we need to have taken care of. That means change anything for the planet. So my perspective is not so much to focus on the negative I focus on the positive how do we want to live. Do

we want to save our own seed? Do we want to have varieties? Do we want to live well? My philosophy is the more we focus on the positive the more the positive will happen.

KC: Is it more of our responsibility to make it happen to kind of like the federal government isn't doing much of anything?

Annie McCleary: I wouldn't say…

KC: Have you made any personal lifestyle changes as a result of the GE free movement? Are you more aware of what you eat?

Annie McCleary: I think I was aware of that way before the GMO movement. I eat as much organic as I don't eat any refined foods any refined sugars at all. I eat very well.

KC: Have you attended any events sponsored by activist groups that oppose GE?

Annie McCleary: No again I try, I admire what they're doing I prefer to work on the side of how we can up the culture so that in a way …

KC: What's your prediction for the future of the status of GE free Vermont? Well its more of a government progression, if they're going to go for are they going to enforce more strict labeling laws or take up the market?

Annie McCleary: Again it will be as it is. Mother earth will take care. But we will not be allowed to destroy the earth. I know that. The more we do things to support the earth being honored and taken care of and eating more good food. The more we work in … we work against mother earth. She will take care. She will not let us destroy her. So I have faith.

KC: Any other closing remarks?

Annie McCleary: I just really honor all the people here at the conference who are organic growing food And I'm interested in the same as an herbalist I do work with medicinal I also work with… I have a … that talks to me about what herbs should I use for whatever. Well if we talk herbs than we have to talk food we talk lifestyle we talk intention. That's the basis of our health and our wellness. Taking care of our food is taking care of ourselves.

Interviewee: Rachel Nevitt **In-Person Interview**
Interviewer: Helena Zec **NOFA Winter Conference**

February 11, 2006

HZ: Can you please give us your name and profession**.**

Rachel Nevitt: My name is Rachel Nevitt and I'm an organic farmer.

HZ: Talk about the first time you heard about the GE free movement in Vermont.

Rachel Nevitt: The first time I heard about the movement… I actually first heard about it in New Zealand. I think when we were traveling in New Zealand three or four years ago. And then in Vermont I don't remember the first time, its just part of the landscape. Probably three or four years ago after I came home from New Zealand and I realized that people were doing something about it here too, but I can't remember the specifics.

HZ: In your opinion, who or what organizations poses the biggest threat to the GE-free movement?

Rachel Nevitt: Two things: I think it is the major genetically engineered seed companies, Monsanto and Dupont and there are some other ones but I also think it's the general public in Vermont who doesn't make themselves aware of what they are buying. And they put their money – you say a lot with what you buy – and if people continue to but GE seed products then they are continuously saying "we want this" and by not educating themselves to what is in their food supply, then they are thwarting the efforts of the people that are trying to stop GE seeds.

HZ: What is your view on the role of the government in regulating this food – have they done enough or not enough and what should they do***?***

Rachel Nevitt: Well since my husband is representative David Zuckerman I feel like he does an enormous amount- I think with Rural Vermont they do a lot of help organizing people to push our govt. there are some people in our current government that care a lot and do a lot and some people, and this isn't just with GE seeds – there are some people in our government who it's just a 9 – 5 job half the year and they show up and they don't really do a lot. So… people rely on the government a lot to set laws. Vermont has a lot of people who they should get to do whatever they want to do, so I feel like there has to be a really good grassroots effort to educate people to what it is and to get the people to care. You can set up all the laws you want to, but people have got to care about it, and when people care about it the laws get passed. So, yes the government has a role and should have a role but the people should educate themselves and get involved and demand that the government do something and when the people demand that the government does something then the government will do something.

HZ: Have you made any lifestyle changes since you have become a member of NOFA or since you have heard about this movement.

Rachel Nevitt: Not since I've become a member of NOFA this has been my lifestyle for a long time – but I definitely – I'm someone who reads a lot and educates myself on a lot of subjects and unfortunately there is so much out there in the world that you are supposed to know about but I have definitely stayed a way from packages and processed foods and I spend a lot of money – I mean a lot of money – buying products that are GE-free. I will not go near anything that even potentially has GMO corn or soy in it.

HZ: So do you think there should be a labeling law for consumers – not just for GE seeds? I mean on products.

Rachel Nevitt: I absolutely think there should be a labeling law. I think people have the right to know I think if the companies have nothing to hide then they wouldn't be afraid of this. Clearly they have something to hide if they don't want it listed on any products.

Rachel Nevitt: My response is that our general public doesn't know enough about critical thinking and whenever somebody says something you think "who is saying that" who makes up the FDA, who pays the FDA and who are the lobbyists that influence the people that pay the FDA and you will find that the major seed companies have a lot of money invested in the FDA to say whatever they want them to say.

HZ: Do you hold any positions in NOFA?

Rachel Nevitt: No

HZ: How is leadership organized within NOFA?

Rachel Nevitt: No idea

HZ: In what ways are your personal values reflected in this organization and are there things that you don't agree with?

Rachel Nevitt: My personal values are deeply rooted in the same things that NOFA stands for … I'm sure there are things that I don't agree with but I just don't even know about them I'm really excited that Steve Kerr was supposed to speak today and I'm really excited that NOFA listened to enough of the members to not have him speak today. He is not on board – I don't care how he phrases things politically when he's out in public he is not in board for the seed labeling laws or the product labeling. He thinks that – he hasn't done the reading – and he thinks that there is no, he says that there is no proven threat that this is harmful to consumers that eat the food, let alone growing things and liability there – just strictly for your own personal health he says that theres no proof. Seed companies haven't given enough proof that it is safe, so I'm glad that NOFA listened to us and pulled him out of here. I don't want to hear what his bull crap anymore.

HZ: I went to an info session with him and he mentioned "coexistence" between the two opposing views. What is your take on that – what do you think?

Rachel Nevitt: Coexistence is absolutely not possible. You cannot have two things could completely influence each other and infiltrate each other and have both separate. You can't – you simply can't do it. It's not possible.

HZ: Are you aware of any types of strategies that NOFA uses to influence the federal and state government and biotech industry? And if not, how do you try to influence people.

Rachel Nevitt: Yeah, I'm not so aware about how NOFA goes it. How do I try and influence people? Talk to people all the time. You can have campaigns, you can have posters, you can have whatever but the way that you're going to most get through to people in a day-to-day, one-on-one conversation face-to-face and not get in somebody's face and say "this is bad", "this is wrong" but just have a quiet little conversation about – with them—usually about critical thinking, about "who's behind that" .. that kind of stuff.

HZ: How would you define "success" and "failure" – either your personal views or NOFA's views?

Rachel Nevitt: In regards to the GE labeling law?

HZ: Yes

Rachel Nevitt: In my personal view – success means that the seed companies will be liable … are we talking about the Farmer Protection Act or are we talking about the Labeling Law?

HZ: It could just be both, in general, or what you would like to see in the future.

Rachel Nevitt: I would like to see laws on the books – here I go, I'm saying people should help in this process and government should stay out of it – but there should be laws on the books because you can't hold the seed companies accountable – they won't do it on their own – that's what Steve Kerr was hoping to do with the original bill. So I would like to see laws on the books that strictly hold the seed companies accountable for their product. Success would mean that we have food labeling rules – I mean, that would have to be nation-wide actually, they won't do it just in Vermont. They'll use that as a strategy to get out of it, its too costly for them just to do it in one area so we would have to have it nationally and again seed labeling on all the seeds – people don't necessarily know when they're buying a genetically altered product. There's no compromise, success means the whole thing.

HZ: I was talking to Amy Shollenberger and she mentioned she was against food labeling because she says that misses the point and 95% of the foods are genetically engineered anyway, so it wouldn't really make a difference … Do you have a response to that?

Rachel Nevitt: I would need to talk to her more about that to see where she is coming from that to see if I agree with her somewhat or not but I think that it would be really useful on products not to say that this contains genetically engineered food but to say what part of it – when they list the ingredients – they used genetically engineered

corn, genetically engineered soy so people could see what kind of genetically altered seed we have out there. I mean, people are just so removed from the whole where does their food come from, thing. I just believe in education, so the more correct stuff we could have out there, really specifically – you know, not just that this is genetically engineered food, yes there is a lot of it out there that is but really specifically what is it and how can we avoid it.

HZ: Any additional comments that you would like to add?

Rachel Nevitt: I'm really excited that somebody is doing this project. You know, a lot of people are still really unaware that there are GE foods out there – seeds out there – and of the plight of people who are trying to grow separate from that what is going on. So I'm really excited that its getting out there more in the general public and this project will bring it more to light for more

Interviewee: VT Representative Dexter Randall **Phone Interview**
Interviewer: Ryan Starbuck **March 13, 2006**

RS: Could you please state your name and profession for the record?

Dexter Randall: Yes I am Dexter Randall and I am a Dairy Farmer in North Troy, Vermont. I have 110 Milking cows and I'm also a state representative from this district to Montpelier. I am a progressive.

RS: How long have you been in farming?

Dexter Randall: I was born and raised on a little hill farm in the town of Lyndon here in Vermont and than I have basically farmed, my wife and I have farmed a farm of our own for 33 years.

RS: And how long have you been involved with Vermont Government?

Dexter Randall: I have been involved with advocacy for a long time, I worked with Rural Vermont, which is an advocacy group, for many years and I ran for public office election, it will be 2 years this coming fall and got elected.

RS: When was the first time you heard about genetically engineered food?

Dexter Randall: Probably, oh I would have to go back maybe 15 years. And it goes back to rBST, rBGH, the growth hormone. Injecting cows to get them to produce more milk, and that kind of took me back, set me back on my heels and good shape. Why do we have to, need to make machines out of cows to make more milk while we already have an oversupply and we aren't getting paid enough. Because in my mind I knew that the more milk we produce, the way the system works, we are going to end up getting less and that is exactly what's happened. Plus I felt that the public, there was a strong outcry, that the public wants a more natural product. And they don't really trust genetic engineering.

RS: When was the first time that you heard about the GE free movement and when did that really start up with people going against genetic engineering?

Dexter Randall: Oh gosh. Within the last 5 or 6 years there's been a real outpouring of a lot of people and it runs the gamut from consumers right straight through to farmers themselves. There are farmers of course that are welcoming to genetic engineering. Its more the large farms, but I would say that the last 5 or 6 years there's been a real strong movement, but I do know that in other countries that there's been a strong outpouring for quite some time.

RS: What organizations or individuals do you think pose the biggest threat to the GE free movement?

Dexter Randall: What was that again?

RS: What organizations or individuals do you think pose the biggest threat to the GE free movement?

Dexter Randall: Rural Vermont organization has been an organization that is one of the leaders against genetic engineering. And than there's been another group here in Vermont Genetic Engineering Action group GEAG in Southern Vermont and than Vermont Gene Genetic Engineering Action Network and than there's been Vermont public research interest group. But Rural Vermont has been right out on the lead there are other small groups that have fallen in behind this but Rural Vermont has been right on the cutting edge and been leading that fight since day one.

RS: On the opposite side of that who do you see as a for GE or against the GE-free movement?

Dexter Randall: Oh from the genetic engineering of course you've got the Farm Bureau, which is a very conservative organization, and than the big multinational corporations that are pushing it such as Monsanto and Dow Chemical. But pretty much the Farm Bureau is pretty strong in their court and they are all about big business and nothing about good food or what humans really want. That's my view on it.

RS: Would you mind talking about your role on the view of the government with regards to the GE-free movement?

Dexter Randall: The role of government and what?

RS: With their regards to the GE free movement.

Dexter Randall: Well I know right here in Vermont, and I'm not a bit bashful to say it, our own Secretary of Agriculture sounds to me every time I hear him talk he sounds like he's a Monsanto lobbyist if that says anything. It runs right down through, you have government officials that it appears to me that they're being fed money somewhere or what's the reason that they speak the way they do, the government. I have read part of a book, I didn't get it all read but *Seeds of Deception* and I think that that really hit the nail right on the head more than once. That follow the money. And government seems to just fight with the land grant university's . We had it right here in Vermont, go right back to they were doing a study on the effects on cattle and using the bovine growth hormone, using it right at UVM, right here in Vermont, and doing that study. Well that's not the right place. And Monsanto was paying for that study. And so it's a conflict of interest as far as I'm concerned and you have all these different things that I distrust Food and Drug Administration very much cause of those things right there. Because that's one of the problems with genetic engineering that we don't do long term study's to find out if there truly are any effects on animals, are there any effects on humans consuming product or anything to do with it. And so in the end the human is the actual guinea pig. And one of the thing that really troubles me is that 85% of all new drugs that are put on the market eventually are according to statistics pulled off the market because of problems with them. So I think that genetic engineering comes right into that same group right there. Are we going to go down the road 25 years from now we got all some kind of problem somewhere? And than we are going to say oh son of a gun, its to do with

some genetic engineered whatever. I just have no trust, no faith in our government as far as standing up to the standard that it was created for.

RS: How do you feel that the state government, more like the legislation that you're more closely involved with, how do you feel that their role in this movement and what are they trying to do?

Dexter Randall: Well as far as the, we passed two years ago a genetic engineering seed labeling law which requires anyone that is selling genetically engineered seed here in the state has to register with the Department of Agriculture of who they're selling seed to and how much of. Which I think is a good thing. The only thing is that some of that rule making sometimes, it depends on who's making the rules and it always seems that they try to bend the rules. And when we go to another issue that we're working on right now, in genetic engineering, and that is the GMO seed liability bill, which makes seed manufacturers liable for any problems caused with genetic drift of GMO crops. And you have some people that seem to clearly understand that and you have others that side right with the industry. I say when you listen to the people, what the people want, is they want good food, they want pure food, they want to know where it came from, how its produced. Many, many people still do not trust, no matter whether genetic engineering is good or bad, they do not trust genetic engineering and for some of the reasons I just stated. There haven't been any long term studies done on it. And so getting the corporations liable for cross pollination or any problems surrounding the whole thing, it has been a struggle the whole way I am in hopes that we will see a genetic engineering liability law, and we will see it this year. If we do pass it through and get it through the house and negotiate it with the senate, its in conferencing committee right now, I don't even know if the governor will sign it. But I do know that when going door to door when I was campaigning, many people that I met and talked with not necessarily farmers but farmers included, want a GMO liability bill.

RS: How do you feel that the, how enforceable do you feel that the seed labeling act is?

Dexter Randall: I think that the seed labeling act is more enforceable than it actually is enforced. That's a, we have a secretary of Agriculture that does not step up to the plate. And he's very lax on things like that right there. As far as I am concerned he lags just as much as he can because he very clearly supports the industry and not his farmers.

RS: Do you have any basis Steve Kerr's actions and do you have any reason why he's siding with this?

Dexter Randall: Well I've know Steve Kerr for many years, or I've known of him. And hes always been the very much, well I might as well say it, very much a conservative. His vision for agriculture for this state is 10,000 cow dairies and big huge mega farms and there's not room in this state anyplace for 10,000 cow dairies. And as far as I'm concerned its to do with his vision and he absolutely thinks that we need to open our arms and welcome genetic engineering because we need to compete. I do not agree with that debate whatsoever.

RS: What's your view on coexistence? Do you think that's feasible?

Dexter Randall: I think that if we pass a good strong GMO liability bill so that it made Monsanto or Dow or the manufacturers of the seed liable for any problems for the seed so farmers could recover damages fairly and reasonably, I think that there is such a thing as coexistence. If they cant step out and do that much, there cant be coexistence. Because those two, organic agriculture and genetic engineering, cannot totally coexist in the same environment without a slip up somewhere. Its going to happen eventually.

RS: Are you an organic buyer or just try to, what type of foods do you tend to buy?

Dexter Randall: I use to buy just conventional food. As I have read and learned more and organic food is more available today. I buy a lot of organic food for the family right here and I think that that is something that more people as they get more educated in vegetables and produce that when its made available that many, many, many people are getting educated and understand that the quality of organic food is much better for you. Get away from the pesticide, from the herbicide and that type of problem are causing health problems in human beings. So I purchase a lot of organic food right today compared with what I used to. And in fact I am an organic dairy farmer right today myself.

RS: Have you attended any events that are sponsored by activists groups, such as Rural Vermont, that are opposed to genetically engineered food?

Dexter Randall: Oh yes. I have gone to many of them. And I think that's where I have learned, its all about learning what's behind this whole thing and understanding and taking the time and to read and to listen to people that know what's going on that are in the know. And than of course you have to have a mind that's open and willing to take that knowledge that they're giving you. Yes I have been to many events. Rural Vermont events in particular.

RS: What type of events are they? Like information sessions, seminars?

Dexter Randall: They're kind of information sessions, seminars and group meetings. Its basically about educating farmers and consumers and they table at different events and they put out information. And than if someone wants to have an event somewhere, if its no more than a kitchen meeting or a gathering somewhere or at fairs, that is how the information is spread out and trying to get the word out to as many people as we can.

RS: Are you a member of any of these established organizations?

Dexter Randall: I am a member of Rural Vermont and I have been for many years.

RS: How active are you in the group?

Dexter Randall: I used to be the chair of Rural Vermont Organization for 9 years until I got elected to the state legislature and than I had to step down my position, I am now on the board, I am not as active as I used to be, I follow what they're doing

and if they come to me for advice or where they are going or anything I work with them on that but as far as anything to do with the organization as far as, I'm just on the board, I'm not any official part of it.

RS: How exactly is leadership organized? You mentioned the board and leaderships, but what exactly is the hierarchy like in the group?

Dexter Randall: We have a chair and sometimes we've had a chair and co-chair. And we have a secretary and a treasurer and than we have just regular board members and at this time right here, we are kind of doing a little bit of reorganizing and going, we can have up to on the board up to 15 members. We got down on members there were some that retired and so on and some that just got out of farming and gave up on the whole thing. And we were down to like seven. Rural Vermont is going to have a board meeting pretty soon and we're in hopes, we have a whole group of farmers who are going to come on as new board members. So I'm in hopes to see the board members up to 15 again.

RS: How do people gain leadership positions? Is it a vote or volunteer?

Dexter Randall: It's a vote. Yes it is. They have an annual meeting and they are nominated and voted upon.

RS: In what ways are your personal values reflected in Rural Vermont and what ways are they not reflected?

Dexter Randall: I think my personal values are reflected in the fact that I believe in healthy farms strong communities family farms and healthy soil. I think that that is one of the things that, its part of our mission statement in fact. I think it speaks to me, its more too about the heritage of Rural Vermont, Vermont itself, keeping Vermont as natural and beautiful as it was given to us as people. I cant say any more.

RS: Are there any things, that actions that Rural Vermont takes that you don't, or things that they're defending you don't exactly match up with?

Dexter Randall: I wouldn't say that in recent years that we've had anything. We basically as a group sit down and discuss what particular things where our vision of what we're going to work on so we basically don't take up anything unless it is agreed upon by the board and by members of Rural Vermont. So we pretty much are in tune with what the people want that are driving the organization.

RS: What type of strategies does the group employ to try and influence local and federal government?

Dexter Randall: We have in the past few years we've had our policy director get in contact with farmers and interest people and bring them into the statehouse. And sometimes they've done a march. They might march up to the statehouse and have speeches on the statehouse steps and have media there. And on days when there's particular things going on in the statehouse we have people come in, go to committees and actually sit down and lobby in the committee and peacefully they have come in at times and sat on the house floor when there was a particular bill on the house floor

just to support the people on the house floor that are working on their behalf. Usually, we are very fortunate here in Vermont that we have the type of legislature that just open the doors the, the doors open and just sit us in the legislature and we're very, very fortunate for that. That's one of the reasons why we can do things that we can. Vermont is a very small state and our government is fairly open to the people. As far as on a national level we used to try to do some work on the national level but it's a harder thing to get funding to do things on the national level. We lobbied against NAFTA, against the GATT agreement, we lobbied against CAFTA and different national issues. We kind of, I wouldn't say we gave up on that but we don't do as much of it because we found with our resources and everything we had a funding availability, we can do a lot more right here in the state of what's really, really affecting us right here in the state rather than trying to go to the national level as much.

RS: What were those three things that you lobbied against? I just want to get those down.

Dexter Randall: NAFTA, GATT and CAFTA. Central American Free Trade Agreement. And we also have the FTAA, Free Trade Are of the Americas. We went to Quebec city, me and a couple of other guys and met up there when they had the big protest.

RS: What type of timeframe are you operating under with genetic engineering in Rural Vermont?

Dexter Randall: Well we would have liked to finished it up last year. But the way this whole genetic engineering debate with the seed liability bill it has dragged its feet into this year and it looks like it may not get completed for maybe another month. I'm in hopes that we'll get it out of conference committee and we'll get it passed on the house floor and it will be done and over with. And than we'll just have to sit down and watch what else comes down the pipeline as far as genetic engineering and its effect on local agriculture here in Vermont. You know we have genetically engineered alfalfa that's in the pipeline but I believe that this seed liability bill would cover that too. So I think that the seed liability bill is going to be something. If we can get this passed its going to make noise that will be heard around the globe because basically there are many, many organizations in many countries that are watching us right here in Vermont to see if this is going to have an impact on how Monsanto and other corporations react and what they do.

RS: How would you define,

Dexter Randall: The implications

RS: How would you define success and failure in the group?

Dexter Randall: Within Rural Vermont Group?

RS Yes both that and just the government.

Dexter Randall: And the government? Well I would say that our success as far as getting a bill passed has hinged very deeply upon persistence of a lot of people that wanted true answers and wouldn't take no for an answer. And as far as the corporations are concerned they are persistent, but I think this might be a case where the people possibly win.

RS: I think that's about it do you have anything else to say?

Dexter Randall: Not too much I guess. Have I given you what you feel you were after?

RS: Yea, it was really good really helpful. Is there anyone else that you would recommend that we would contact? There's a group of people that Zuckerman recommended but I was wondering if there's anyone else that you would like to mention to me that you think we should contact about this issue?

Dexter Randall: Well I think that Amy Shollenberger with Rural Vermont would be really good to talk to.

RS: We have had an interview with her.

Dexter Randall: You have? And how about Genetic Engineering action group Jim Molton? He is down in the southern part of the state and I know it but its slipping my mind at the moment. Maybe Chester, Vermont and hes been kind of heading up the genetically engineered action group. Peter Cooper from Brattleboro, he's been involved with it. They would be good people, they are consumers and they are interested people. I think it would be good to talk to somebody of that nature and see what they're angle on it is.

RS: That's basically about it, Thank you very much.

Dexter Randall: Yup

RS: Have a nice day.

Interviewee: Jim Rapp **In-Person Interview**
Interviewer: Kathryn Carpenter **NOFA Winter Conference**

February 11, 2006

KC: Can you please state your name?

Jim Rapp: Jim Rapp

KC: ***What is your general view on GE foods?***

Jim Rapp: It's about the worst thing that corporate agriculture ever developed.

KC: Can you talk about the first time you heard about the GE free movement in Vermont?

Jim Rapp: It was probably about 3 or 4 years ago when of my customers in the fertilizer business, told me about an organization they read about it and they had some information about GMO's while it disrupts the amino acid structure of cells so I told them the government needed some activism.

KC: Can you please tell us your profession?

Jim Rapp: I'm an …consultant.

KC: Can you talk about which organizations or individuals who may pose a threat to the GE free movement?

Jim Rapp: Anything involving agro-pharmaceuticals. Most agriculture today is run by pharmaceuticals such as Monsanto. They control the seed industry, chemical import industry.

KC: Talk about your view on the government in regards to GMOs?

Jim Rapp: They're opinion is the more the better.

KC: Have you made any lifestyle changes as a result of the GE movement?

Jim Rapp: Yes I only drink organic milk.

KC: Have you attended any events sponsored by activist groups opposed to genetic engineered food?

Jim Rapp: Yes I have been to some … and I have also testified before the house agricultural committee in Montpelier.

KC: You said before that you are a member of Rural Vermont? Are you a member of any other organizations?

Jim Rapp: Well I'm a member of Vermont Farmgrow, to be honest is a not really a good locally owned system. I'm thinking about not renewing next year because they don't deserve my money.

KC: How long have you been a member of rural Vermont?

Jim Rapp: 2 years.

KC: How active are you in the group? Do you hold any positions?

Jim Rapp: No. Sadly I'm not active.

KC: Do you know how leadership is organized in rural Vermont?

Jim Rapp: No I don't.

KC: In what ways are your personal values reflected in membership to the organization or ways in which your personal values are reflected?

Jim Rapp: They pretty much mere my personal values and what I believe in. Corporations are trying to take over the world and personally I really think they're succeeding

KC: Do you know about the strategies that Rural Vermont employees use to try and influence local and federal government and the biotech industry?

Jim Rapp: They do a lot of work with legislative influence to get laws passed with the support of the public behind the use.

KC: Do you know what exactly they do to try and influence the government***?***

Jim Rapp: Basically through constituent campaign. Vermont is one of the few states that the legislation closely reflects what the view or the, what the wills of the people are. Of course you have a few legislators that will vote whatever they feel like no matter what the group says. But most will vote against their own views just to support the majority of the …

KC: Do you know who or what contributes to the funding of Rural Vermont?

Jim Rapp: It's mostly individuals.

KC: Personal contributions?

KC: Do you know what percentage of the budget of Rural Vermont is reserved for the GE free movement specifically?

Jim Rapp: No, but I could guess over half.

KC: Do you know what timeframe you are operating under, do you guys have a set of goals with a timeline or dates in which you would like to get things past**.**

Jim Rapp: Well we are trying to pass a liability act and I guess we are down to the last few months. We've been pretty active for about 2 years. And that's how long of a chance you get to go to the state government.

KC: Can you talk about the legitimacy of Rural Vermont's goals? Such as how seriously people should take them and if it's realistic that the goals will be achieved?

Jim Rapp: Can you repeat that please?

KC: Can you just talk about the legitimacy of the organizations goals? Is it realistic what your goals are and what you're asking the government to do? How welcome will the government respond to you?

Jim Rapp: I think it's about 80 percent.

KC: How do you define success or failure?

Jim Rapp: Personally or on this topic?

KC: On this topic and personally. Whatever you want to talk about. Its open ended.

Jim Rapp: Let's focus on this topic. Success would be of course getting that off as failure would not. But in between that the awareness that the government has learned from it is also success. I have the opinion that Monsanto is probably the biggest advertisement for organic farming because they are so bad and people are getting fed up with the crap they're pulling that it only makes organics look better.

KC: What do you mean exactly by their advertisement?

Jim Rapp: They miss inform they manipulate. They're evil. They're evil.

KC: What's your prediction of the status of GMO's in Vermont in the future?

Jim Rapp: As far as its use in cropland?

KC: Its use in cropland or its ability to be on the market?

Jim Rapp: Basically in Vermont we have corn and soybeans that are genetically modified. The corn is most farmers are not too keen on it they use it because they feel that it's their last resort to control weeds. They feel it's already an in balance and they get bad news from the university of Vermont they don't get it from me I think it's highly unnecessary. Non organic soybeans are basically 100% roundup which is genetically modified. That probably the change.

Interviewee: Michael Sacca **In-Person Interview**
Interviewer: Helena Zec **NOFA Winter Conference**

February 11, 2006

HZ: Talk about the first time you heard about the GE Free Movement?

Michael Sacca: Michael Sacca

HZ: Talk about the first time you heard about the GE Free Movement?

Michael Sacca: It was probably 2 or 3 years ago. Well I don't know maybe more than that actually. Reading it in a public …called Towards Freedom based in Burlington, Vermont. So anyway it was probably from reading newspapers but it's hard to say exactly when but now when I'm thinking back it was probably 4 or 5 years ago. So I don't know exactly when but my impressions were oh this sounds dangerous first impression and I continue to think that

HZ: Talk about which organizations or people might pose a threat to the GE free movement?

Michael Sacca: So that would restrict GE free VT from operating. So the ones that come to mind are kind of Monsanto I know them and other seed companies an mega companies are lobbying very heavily spending a lot of money in Vermont. I also think the people who are legislators of Vermont standing against it. I live in Tunbridge, VT its an agricultural community 10 miles from here and we actually as a town passed GE-Free zone last town meeting a year ago. We as a town, I know a lot of people growing food and I've gotten a lot of information from them. Their sole source of income. So I've learned a lot talking with them. And I've actually gone to Montpelier to speak to legislators.

HZ: Talk about your view on the role of the government with regards to the GE free movement. Do you think they're doing enough or not enough?

Michael Sacca: Done enough or not enough in what direction. They've done plenty by obscuring the facts or not taking a stronger stand. I think that the government is a corporate mentality and they are going to work with corporations more than individuals. It's not helping the process of disseminating information. I don't know what the vote would be in Vermont if we had a vote tomorrow, would you want GE to continue in Vermont or not, I mean the circles I swim in are definitely against that and I don't know anyone's that's for it. Again the certain complexity is who's responsible for seed that get away that's the thing that is really getting most people I know. And the fact that it was the farmer and now it's sort of like, I'm not exactly sure how the new law reads but it sounds like the farmers assume a certain level of innocence, I'm not sure, some loophole where they can be exempt from being responsible. But as far as I know Monsanto and the State of VT and Steve Kerr stand on the wrong side of the fence on this one. It made it week into the end but it didn't quite, its better than not but it didn't far enough with the recent legislature.

HZ: How enforceable of a law is that in the future of GE free.

Michael Sacca: Well that's always the problem with regulations whether it be something like GE Vermont or whatever even deed restrictions how do you know what sort of deed restriction do you put on a piece of land 10 years go by 20 years how do you know if those were going to be violated or not. Enforcement is really a key thing. Its usually lacking I guess it's almost like people have enough of a consciousness in a town or a state so that they know when an individuals might notice and I don't know where that critical passive consciousness will be so that somebody in the town or whatever I doing something against regulations, GE free zones, somebody's going to say hey look at that and tell someone else, there has to be an awareness of community and statewide awareness and I don't know. And to answer your question if that exists now or what it would take to do I don't think that would have to be with a police force of sorts, or even the state getting involved to enforce would be the main way it would happen.

HZ: Have you made any lifestyle changes since you became aware of the movement? Do you buy only organic foods now?

Michael Sacca: Well we do buy only organic foods, we have for about the last 3 years. Well I don't know, this would be one part of the equation. Certainly the reason why we've gone organic and you know we buy our food all of our meat comes hamburg, most everything we eat comes from this town. We've put up a ton of food from the garden across the road as well as stuff we grow. The hamburg comes from half mile away everything comes, lamb, pork, it all comes from within 10 miles away we don't eat a lot of meat though. Anyway, so we're aware of the need to eat, well you know organic but also locally and our kids know where they're food comes from.

HZ: What's your profession?

Michael Sacca: I am a video cameraman.

HZ: And you grow your own food is that just a hobby?

Michael Sacca: Um no we do it because we have to eat, you know we time restrictions probably preclude growing more food but definitely we do it for the freezer, or freshness. In fact we have, oh for the last 6 years we have a winter greenhouse. It's a small thing 6x8 or so. But we grow greens, I mean I had salad the other night and it's you know early February from our greenhouse. Not putting any, it's been so mild that's why. Ordinarily it doesn't really start up until later in February or early March and than by the end of March we can eat it and start giving stuff away. Now we're growing our food because we know where it comes from and we want to be more self reliant.

HZ: Do you attend any events sponsored by groups that are opposed to GE?

Michael Sacca: You mean like a talk?

HZ: Even like this conference?

Michael Sacca: Well yea but I do make it a point to read information. Do I seek it out? Yea I do seek it out but if someone gives me something to read I will read it and talk to people about it like family or friends who may not know much about it.

HZ: You might have already answered this question but are you a member of any organizations related to this issue?

Michael Sacca: No

HZ: Do you have any people that you would recommend talking to as well?

Michael Sacca: I would talk to farmers directly I mean the people that I mentioned that live across the road and have the market are actually not here today. They actually live in the Bahamas, they take they're summer time in the winter because they too busy in the summer. So but anyway they're names are Wendy and Jean Palthy and they're in Tunbridge, VT

HZ: Do you have anything else that you would like to add?

Michael Sacca: I think its really with James … words today talking about basically redirecting society, the end of pop culture which would be fine with me and that sort of thing small scale deregulation and local solutions to energy food is going to be a trend and genetic engineering definitely fits into that because it basically effectually puts up walls and barriers to people doing, growing their own food. You know it's just a bizarre thing to me this whole aspect of if a seed lands on your land you could get sued. It's only corporate interests that have allowed that sort of weird perspective and legislation to occur. Genetic engineering is a bad idea I'm really sorry that people have to put so much effort into fighting something that is so obviously wrong.

HZ: Thank you

Interviewee: Amy Shollenberger **In-Person Interview**
Interviewer: Helena Zec **NOFA Winter Conference**
February 11, 2006

HZ: Can you talk about the first time you heard about the GE-free movement in Vermont?

Amy Shollenberger: Well I'm not sure I remember exactly the first time but I started working with Rural Vermont in 2003. And it was pretty much when I was hired – I was hired to do this – I don't know exactly the first time. But I would say February 2003 I came on as policy director and that was when the town-to-town campaign was still happening so it was the month before a lot of towns passed resolutions and then it sort of snow-balled right after that into legislation. We're an advocacy group so I was – you know- the lobbyist that was working on the legislation in the state house ever since then.

HZ: In your view, what organizations or individuals pose a threat to the GE-free movement in Vermont?

Amy Shollenberger: Well, I think its important to clarify that – we, GE-free Vermont in my opinion no longer actually exists. Rural Vermont is no longer actively seeking a moratorium on GE-seeds. We are working on strict liability – I'm not sure if that changes your question … I can answer who is advocating against strict liability but that's not quite the same.

HZ: Who is advocating against more regulation and accountability on the biotech industry's behalf?

Amy Shollenberger: I would say the biotech industry is really the biggest adversary. So, Monsanto has put a lot of resources into the states specifically – with the lobbyists, and with some, you know, direct-mail pieces. There is a group called the "Associated Industries" which used to be called "Crop Life America". They're like all of the biotech industry's organizations. And then, in our state, the Secretary of Agriculture has taken a position that basically supports the industry's viewpoint. The farm bureau has been getting stronger in its opposition. They were sort of neutral for a while but now they are taking a stronger stance. And also the Green Mountain dairy co-ops have been working on some level against the bills that have been out there.

HZ: What's your view on the role of the government with this issue?

Amy Shollenberger: Well, for us the issue is really about the liability that is associated with the seeds. And so, what we believe should happen is that the state should adopt a law that says the manufacturer should be liable for any economic damages. So that's a policy statement – it doesn't actually put any regulation on anybody – it just simply says "If there is a problem with the seeds, the patent holders will be liable for it."

We also supported the seed labeling bill which also supported the provision for the secretary to collect data just the pounds of GE-seeds sold in the state each year compared to the total of pounds of seeds. So I'm not sure it's accurate to say we are asking for more regulation – we are asking for the state to clarify responsibility of the manufacturers and to level the playing field for the farmers that are currently accepting all the risk for the patented products that they don't have any control over.

HZ: So it sounds like you're more concerned with the farmer's end of it rather than the consumers…

Amy Shollenberger: Yeah, right. Our group – Rural Vermont – is founded and led by farmers and everything we do is led by the farmer's perspective. We're not a consumer organization.

HZ: In your personal view, do you think foods for consumers should be labeled that they contain genetically engineered ingredients?

Amy Shollenberger: Well, personally, and this is not necessarily the organizations viewpoint. But, personally, I think labeling is a way to foster acceptance of various products, whether GE, chemicals, or artificial ingredients. And I think that a lot of times people fight for labeling and all it does is make the market accept the product. And I don't think its really not addressing the core issues of you know, access to healthy, local foods that a lot of people – people in cities don't have access to that food – even with labels people don't have any choice about whether to buy it or not. And it really bothers me when so many resources are put into labeling campaigns. Because I think it really is a misplaced focus and it doesn't get at the core issues.

HZ: Have you made any lifestyle changes since you became involved in Rural Vermont?

Amy Shollenberger: Yeah. Not so much since I became involved in Rural Vermont but since I moved to Vermont – because where I lived before I didn't really have access to- in the same way to local foods and so since I moved here I've really made some conscious choices to way to get a high percentage from my foods from a 50 or 100 mile radius. I try to buy all my protein directly from farmers. Most of my produce I get from you know, local markets. And I also have really thought about particularly milk for instance – I've started drinking raw milk and trying to get more unpasteurized cheese products and that sort of thing. Both for health reasons and also for political reasons I think it's better for the local economy to buy directly from local farmers.

HZ: In what way are you personal values reflected in Rural Vermont – are there things that you don't agree with?

Amy Shollenberger: No. Actually, the reason I work for Rural Vermont is because it is one of the few organizations that matches my personal and political views so closely. Rural Vermont is very much about direct democracy – so people who are affected by the decisions – mainly, in our case, farmers are the ones who set the policy for the organization and who make the decisions about you know – if we're working on a piece of legislation and legislators come to us and say, you know "What

do you think about this or that" We don't make those decisions, we meet with the farmers, and we ask them what their choice is and what the policy should be. Also, Rural Vermont is very committed to working on root causes as opposed to dealing with the symptoms and that is very important to me. That's why I'm so excited to work on the strict liability bill because it really gets at the heart of you know, the manufacturers are patenting seeds, they are controlling the seed supply and they are not having to take any responsibility for it. And I don't think that this bill actually solves the problem but I think it gets a lot closer to solving the problem then you know, labeling food or saying that farmers can plant the seeds does – because it goes directly to you know, the patent holders and dealing with them.

HZ: What types of strategies does Rural Vermont use to influence federal and state government and biotech industry?

Amy Shollenberger: Well we haven't – since I've been working there we haven't done any corporate target campaigns so I just won't speak to that. But as far as legislatively we do sort of the typical things- we have people make phone calls to their legislators, write letters to the editor, come to the state house and lobby, come to the state house for hearings, most of our members pride themselves on being educated on the issues. Most of the people that you talk to at one of our events can tell you exactly the language of the bills, of what's in the bill – they've thought about it, they have their own opinions about it. We do workshops for people to learn about the legislative process so that they can engage in it on their own. We also do direct action – we've dropped banners and we've had rallies, we've marched and we taken over meetings and things like that. But we prefer to you know – those are sort of last resorts – and we also really work with local groups – local farmers – and other groups – to connect groups to each other and encourage them to do their own thing. Since we are really interested in developing leadership within the community and have people develop their own strategies.

HZ: What contributes to the funding?

Amy Shollenberger: We're funded in several ways. One is, we have these paying members. And some people give us large donations. We do get foundation support – mostly from small family foundations, a few larger foundations. We don't take state money, we don't take government money, and we don't take corporate money.

HZ: How would you define success and failure?

Amy Shollenberger: Well, do you mean in the context of this campaign, or in general?

HZ: Well, let's just keep it to this campaign.

Amy Shollenberger: I think, for this campaign, there are a couple levels. I mean, the ultimate success would be if our bill gets enacted. That would be a huge victory for us. But, short of that, the level of education and involvement and conversation that has happened on this issue in and of it is a success. Not for Rural Vermont, but just for the state. I think that the farmers that have made connections with each other, that have learned how to participate in the legislative process and those that have taken

some personal risks to speak out and to see what that's like. I think all of those things are success. Because that's what democracy is about – people getting engaged, people talking to each other, people taking responsibility for what is happening around them. And to us, that is the ultimate success. And we also sort of on the larger scale. We do have a vision statement for agriculture in the state of Vermont. That would be the ultimate success and this bill is just a very small piece of that.

HZ: Are you operating under any kind of timeframe?

Amy Shollenberger: Well, you know, the legislative session if the bill doesn't pass by the end of the legislative session we would have to start all over again. That could be from any time from April 15th on – so we are on a bit of a timeline for the bill itself. But, overall, we are here.

HZ: OK. Can you talk about the legitimacy of your organizations goals?

Amy Shollenberger: I'm not sure what you mean.

HZ: Yeah- it's kind of an open-ended question. Maybe like how society perceives – maybe people who aren't as aware of the issue and –

Amy Shollenberger: So, what do people think of us outside of...

HZ: Yeah.

Amy Shollenberger: Well, that's an interesting question. Because, I think that people that are able to understand what we are trying to do – who are able to read our materials and talk to us. My experience is that – even if they don't agree with us – they don't necessarily say we shouldn't be doing it. But there is a lot of industry folks and the agency of agriculture too are saying that you know, we are trying to put farmers out of business, which is so far from what we are trying to do and so I think there is a perception sometimes that we are a radical group or a bunch of long-haired hippies and I think that is fed by – not so much by what we are doing – but by industry who are trying to delegitimize us – so that's a constant struggle for us. But my experience is that because farmers set our policy and are often spokespeople – people can see as they look at us that that's who we are. It is only the people that we don't have the chance to engage with that are pointing the finger at us or have a mixed perception of us.

HZ: I just went to a Q&A session with Steve Kerr and he advocates "coexistence' – what is your take on that?

Amy Shollenberger: Well the strict liability bill would actually allow for coexistence. And we've made that point many times – we need to know that if GE-seeds are planted we know that there will be cross-pollination and we know that people who do not want GMO's in their crops will get them in their crops and so if you are really committed to coexistence and you really want it to be OK with everyone than you have to address the concerns on both sides. And the concerns on the folks that we are working with are that if they get GMO's in their crops they are potentially going to lose their markets and lose price premiums on their crops. And

where they might not be able to feed their crops to their organic animals. And we want to make sure there is a way for them to recover their losses. And Secretary Kerr thinks that only the people who grow GMOs should have their concerns addressed and they are the only ones that have concerns. And we just disagree with that. But we don't think that – I think it is valid to say that every farmer we are working with has basically accepted that GMO's are here and that we sort of need to take steps to deal with the fact that they are here.

Interviewee: Tom Sterns **In-Person Interview**
Interviewer: Helena Zec **NOFA Winter Conference**

February 11, 2006

HZ: Can you give us your name and your profession?

Tom Sterns: Yes, Tom Sterns and I own the high mowing seed company.

HZ: How bout the first time you heard about the GE-Free movement in Vermont.

Tom Sterns: Probably in 1996 which is when I moved to Vermont.

HZ: Which organizations or individuals pose the biggest threat to this movement?

Tom Sterns: Pose the greatest threat to the?

HZ: The GE Free movement.

Tom Sterns: My involvement has not been as much with the GE Free movement its just with the issue altogether. As far as Vermont being a place where no genetically engineered seeds been planted I think is not a reality. So my involvement has been not so much with those organizations working for a complete moratorium but with those that have been working to figure out how best to figure out what to do now that its here.

HZ: What do you think your, the role of the governments been in this issue? Do you think they've done enough or not enough, what actions do you?

Tom Sterns: I think in some cases they have been, this specific in Vermont?

HZ: Yes

Tom Sterns: There could have been more and better conversation between all parties involved but I think in a lot of cases the more extreme activists organizations have pushed so hard that its pushed the conversation off the table and pushed people away from wanting to discuss it. I was invited by Secretary Kerr three years ago to be part of these coexistence meetings looking at how organic ag and GMO ag can coexist together. And those meetings dissolved. And I left before they even dissolved. I'm out because of the extreme views that the activists GE free side of things. That just made it really ugly.

HZ: How do you like see with coexistence between GE free and GE foods how do you see that in the future?

Tom Sterns: I guess here in Vermont I would like to see as much labeling and public disclosure about the seed the products that kind of thing than the consumers can make a choice about it. As far as farmer to farmer, you know the pollen being blown from a

GE crop over to an organic crop or something like that. I think it's the public property issue more than anything else. That you cant legally dump gasoline in your stream and let it flow down to your neighbors place. It's the same sort of thing. One neighbors producing something that destroys the options for another neighbor to produce something. And the public you know as a private property issue more than anything else I think it's clear that there are issues with it and it should be looked at the same way that other private property issues are looked at. Like the pollution industry.

HZ: So how enforceable is the Farmer's protection act and the GE free labeling act? Do you think those are enforceable and are they enforceable?

Tom Sterns: I don't think that they are as effective as they can be but I think it's a first step. And I think a conversation among farmers is a very important thing and the government here in Vermont could help facilitate some of those conversations to make sure know what each other are doing. But I would like to see more in both areas.

HZ: Have you attended any events are sponsored by organizations that are against GE foods?

Tom Sterns: Yes I have.

HZ: Like what?

Tom Sterns: Like NOFA and that's the only one.

HZ: In what ways are your personal values reflected in NOFA?

Tom Sterns: Well as an organic seed company we don't sell any genetically engineered seed. And there's a pledge in our catalog called the Save Seen Pledge. Which we and a 150 seed companies have signed saying we will not sell these seeds and this is why. And we actually organize that Save Seed pledge and it's administered by a group in Massachusetts called the council for responsible genetics. But 150 seed companies have signed that pledge and that was about 5 years ago. I'm right there in it. I'm very interested in seeing the discussion continue. But I'm also very practical in knowing that here they are and what do we do know is an important piece of itself. Building bridges and relationships, rather than burning them down to the ground by yelling and screaming about how bad it is and how evil Monsanto is, is not my approach.

HZ: Just out of curiosity is it difficult?

Tom Sterns: Doing it now.

HZ: Amazing.

Tom Sterns: Steve, they got me in on this too. Yea they're going to tape us and keep us honest. And that's actually getting recorded right now, see. I didn't get videoed though, I'm not important enough? I was wearing his name tag 2 hours ago.

HZ: Just out of curiosity is it difficult dealing with Monsanto and the other companies patent DNA and certain seeds- how difficult is it for you as a seed company to sell these seeds?

Tom Sterns: It's not too difficult for me they're dealing mostly with big commodity crops that I don't deal with. We sell vegetable, flower and herb seeds not so much feed corn and soybeans and that kind of thing. Every seed company has varieties that they don't tell people where they got them from and they control the genetics of it. A hybrid is a variety that is a cross between 2 parents it happens in nature as well as in human hands and those 2 parents is kept secret and the variety that results, it's a great variety, but no other seed company can reproduce it because they don't know the parents. Clearly normal thing. It's not a big change. It's different to have them patent a life form. Or patent a process in agriculture that is a little bit different. But the whole concept of intellectual property is nothing new to seeds. It's been around for a hundred years.

HZ: What do you think of FDA's claim of substantial equivalence to GE foods -- to conventional food that weren't genetically engineered?

Tom Sterns: I think that just like many other new things that have happened. As soon as they happened a lot of people try to explain that they're really bad and there's test that show in both directions and most of those tests are based a lot on the bias of whoever's running the tests because the evidence is really hard. It's not totally clear. And like 20 years down the road we'll finally know a lot more. But people were going nuts when they were trying to put radios in cars. 60 years ago they tried to stop it because they thought it would be causing disasters all over the place. Radios in cars I think is widely accepted to be okay now, but PCB's back 50, 60, 70 years ago were thought to be fine and now they're not. It can go either way.

HZ: What kind of strategies does NOFA use to influence federal and state government and biotech industry?

Tom Sterns: Education is one of the big aspects of NOFA, has always been really active in educating its own membership, educating others out there and trying to have a seat at the table for a lot of the different conversations that are happening in the department of AG and other places about it.

HZ: And what contributes to the funding of these organizations?

Tom Sterns: Of NOFA?

HZ: Yea

Tom Sterns: The membership and the membership dues. The winter conference and the money from the winter conference. Grants that NOFA gets that are both federal grants and state grants from foundations and other charitable organizations.

HZ: What percent of your revenue or your budget,

Tom Sterns: Of NOFA?

HZ: Yea, goes to GE free movement?

Tom Sterns: Very little, I would say. I don't know you would have to ask Kirsten she's the financial manager at NOFA but yea I have no idea.

HZ: Is there a timeframe that you are operating under?

Tom Sterns: For what?

HZ: For achieving your goals? Is this matter urgent to you?

Tom Sterns: Personally?

HZ: Yea

Tom Sterns: No, I've got a lot of other things more important than fighting GMO's coming into the state. So, but I think as a timeframe that NOFA has? I don't know if there's a specific goal with a specific timeframe about it. I don't know. I don't think NOFA has a specific goal about the moratorium right now. Hey look I'm getting interviewed right now. I'm almost done though.

HZ: Can you define success and failure, you just said there's no specific goals.

Tom Sterns: I know, but I don't know if there's a specific goal. It would be clear to say that by 2020 we want all GMO crops out, but I don't know if there's a goal like that or not. So to define success or failure I don't know. My personal feeling about it, and I think the feeling of a number of folks on the board of NOFA is that its important to keep the conversation going and to not burn bridges before we even build them.

HZ: Can you talk about the legitimacy of NOFA's goals or view?

Tom Sterns: What do you mean? The legitimacy of them? It's a great organization that is a pretty diverse organization. And so we have the challenge of speaking to and serving all gardeners consumers and commercial growers all at the same time. So it's a big task I guess.

HZ: Are there any other people that you would recommend contacting?

Tom Sterns: A plant breeder. Someone who's a plant breeder who is involved with the intellectual property issue, the genetics and somebody who is aware of both these issues.

Interviewee: Susan Stone **In-Person Interview**
Interviewer: Helena Zec **NOFA Winter Conference**
February 11, 2006

HZ: When was the first time you heard about the GE- free movement in Vermont?

Susan Stone: Probably, it's been ongoing for several years. There's a person in a town that I lived who was very very active and we started seeing lawn signs going up against the GMO's. I've been also interesting in GMO's from before that time not just in the Vermont issue but in the ongoing issue particularly on Monsanto and some of the scientific projects they've been involved in and sort of pushing genetically modified foods into the general public and I've also having read a book the botany desire that has some description of that too.

HZ: Talk about which organizations or people might pose a threat to the GE free movement?

Susan Stone: That are pro Genetic? I think that it's primarily Monsanto is the one that comes to mind and

HZ: Other biotech companies?

Susan Stone: I'm not that, I couldn't really name them and be sure that I'm naming the right ones

HZ: Talk about your view on the role of the government with regards to the GE free movement.

Susan Stone: The government has completely abandoned their goal as an entity that should review this stuff and protect the public from any possible dangers they could face from genetically engineered foods and in fact I think the government has the opposite stance that they are all for supporting large corporate ventures and not for being....

HZ: Have you made any lifestyle changes as a result of the GE-free movement? Do you buy non-GE?

Susan Stone: I'm not only well, I suspect that genetically modified grain corn and soybeans that I buy only organic food now. I don't ever shop at a regular supermarket part of the reason is because Vermont has very good food co-ops, organic food and local food. I am very upset to find out that I have been eating genetically modified food, I don't believe in it and I think its ethically, true that I have these questions, its ethically immoral to do it right now till we really know what they're creating is safe and the fact that its kind of creating, patenting seeds and procedures that privatizing things that should be in the public domain is also very unethical

HZ: Do you think everything should be labeled?

Susan Stone: Yea I think everything should be labeled.

HZ: Have you attended any events sponsored by activist groups opposed to genetically engineered food?

Susan Stone: No

HZ: Are you a member of an established organization which is opposed to GE?

Susan Stone: I don't know. I support a lot of environmental groups in the state and perhaps membership in some of those ... not that I know directly.

HZ: Ok. Are you active in any of these groups?

Susan Stone: Yea I'm pretty active

HZ: What do you do?

Susan Stone: My activism is around simple living practices. Basically working on the relocalization movement which is anti globalization which kind of has to do with wanting to try take power away from global corporations and bringing it back up to the local level having decisions, having local control of our key sources and our energy sources.

HZ: How is leadership organized in your organization? Is there an Election process? Or is there kind of a more informal thing?

Susan Stone: I think that a lot of the organizations, I mean as I said I'm not directly related to an organization that is doing this , I think you will be talking to people that are. Generally there are often membership organizations of like minded people who are who have a normal non profit structure. Unless they're doing legislative lobbying and stuff like that I don't know about whether they would be non profit or not. They usually have a board, they often will have..., and then there's usually a volunteer board involved places like vterg are well structured that have lots of paid employees and volunteers.

HZ: In what ways are your personal values displayed in any organization? I know that you're not really like a member but you're involved.

Susan Stone: Well I think that my financial support or my volunteer time goes to environmental organizations because that's my values is for me the most important thing that any of us can do that the society has been moving to very catastrophic destruction of the environment cause people don't make the connection there that clean air and clean water and a healthy environment that doesn't include pollution of all kinds, is special to the well being of not only humans but all living things and that its very distressing to see that popular culture and that the American culture has increasingly divorced itself from any understanding whatsoever that the earth is really that we live on. It is essential to us and so I put a lot of energy into promoting that idea because I think that fighting a huge tide against that. That is built on what James ___ was talking about earlier that the grievance law that people are ... And they really don't understand.

HZ: Are there people that you don't agree with in the organization?

Susan Stone: No I think that I haven't really aligned myself with any organization that radical in terms of breaking laws to get their way. I am a sort of believe in peaceful means. I'm a sort of educator I try to talk to people.

HZ: What kind of educator are you?

Susan Stone: Well I was trained as a high school English teacher I taught at college level and I've done other things too since than. But that's really where my heart was. I was involved in…. Our program teaches mostly adults and they're community discussion...understanding the environmental and its very grassroots and it's also supports self education on a very deep level and talks about the way…..

HZ: Which types of strategies does your group employ to influence local and federal government? I know you said

Susan Stone: I'm not speaking for a group in particular so I cant really say that but I do know that unrelated to GMO's but sort of strategy that a group I know uses is grassroots activism by engaging people to become active citizens and we're not political and we welcome everybody to become active in a sort of non judgmental type of education it's mainly grassroots from the bottom up and most people are on their own become active in their home towns and start making change happen.

HZ: So it's kind of like the way that…

Susan Stone: There's email lists. There's awareness of activities going on in different regions. Crops movies and documentaries. But it's mostly grassroots…

HZ: What contributes to the funding of the organization that you're aware of, is it the members that contribute?

Susan Stone: Many of them are paid membership and I imagine that they get large grants from all kinds of foundations that support their work and donors.

HZ: …progress in genetic corn?

Susan Stone: No

HZ: Okay. What timeframe are the organizations operating under?....

Susan Stone: I don't know.

HZ: And how would you define success and failure of these…

Susan Stone: I think it would definitely be through having legislation passed. Convincing people to… trying to change the power structure of the corporations…to make it actually not legal to put these products out without having tests them…impact on the environment.

HZ: Do you have any additional comments or people that we could interview?

Susan Stone: Probably go to that table and ask them that question. I don't know if … is here. I would say any member of an established organization.

HZ: Do you have anything else that you would like to add?

Susan Stone: I'd be interesting in finding out what conclusions you make. But I guess I would like to say that even though I'm not deeply involved that I have actually done a lot of reading about GMO's and the whole sort of issue surrounding it and I know … what these companies are doing and how they are trying to push through it is not clear to me that is motivated that they are trying to do good in the world even though they will say that that is true. They … some sort of a machine thinking that Starbucks is better all the time and that … is better. And I really feel it's an ethical issue it's a personal issue and I hope you can hear that though.

Interviewee: Brian Tokar **Phone Interview**
Interviewer: Kathryn Carpenter **February 8, 2006**

KC: Can you talk about the first time you heard about the GE-free movement in Vermont?

Brian Tokar: Well, I guess I was really involved in helping start the GE-free movement inVermont. My initial involvement here started back in 1988, when I started collaborating with some of the people at the organization Rural Vermont on the issue
of bovine growth hormone. Because I had a background in molecular biology and had done some work on the issue when I was living on the West Coast, they called me into help with some of the work on that issue. I did some work with another organization after that, and when we started getting concerned about GE crops getting grown, our organization got together with people from some other groups and started talking about what to do. So 1988 is when I started working here, yeah. It has really become a major focus until the late 90's. The first commercial plantings of GE crops in the US and around the world were in 1996 so that is when the issue really started to heat up.

KC: Can you discuss whether there are any organizations other than biotech industry that are resisting the GE-free movement?

Brian Tokar: Sure, the main organizations that have been speaking out in favor of GE are mostly big national lobbies that have direct ties in corporations like Monsanto. Those
include the Farm Bureau, the Grocery Manufacturers of America, and they have a Vermont chapter. There is a lobby group called Crop Life International, which is also mostly Monsanto that has been pretty active here. Those are the main ones.

KC: What is your view on the role of the government with regards to the GEmovement?
Specifically in Vermont with regards to the labeling laws and the enforcement of these laws?

Brian Tokar: Well, the role has been pretty minimal. There is no requirement for GE labeling anywhere in the United States as you probably know. The 3 agencies of the federal government that are involved in different aspects of regulating GE products have all been extremely lax in their enforcements. So given that there was really kind of a
deadlock in any possible progress nationally and there have been a few attempts at the state level but it wasn't really that big of an issue here, that's when we started focusing on the local level.

KC: Do you think it's going to be easily enforceable to enforce labeling of GE products?

Brian Tokar: For labeling probably not. We had a law that passed in Vermont of BGH products and that was thrown out by a federal appeals court. So that is why we

have been focusing more on agricultural practices. That is something that the state and local communities do have some leeway over.

KC: Can you provide an overall summary of events that you have attended sponsored by activist groups?

Brian Tokar: Well, what kind of events. Many different kinds of events. There have been panel discussions, film showings; there are a number of good films on the genetic
engineering issue that have been shown all over Vermont. Trainings to work with people who want to be more active on the issue to help them develop their skills and just general meetings where people interested in the issue come together and share experiences on what everybody is doing.

KC: Which organizations are you involved in – I know you are a Professor at the Institute of Social Ecology and founder of Northeast Resistance – any other organizations that you are a member of?

Brian Tokar: Those are the important ones. The Institute has really been my main organizational base over the years that I have been doing this work. And then we work in coalition with other groups, but the Institute is my own main affiliation. And Northeast Resistance has been a very loose network. It has not really been functioning as an organization, probably since 2000. As you probably noticed, the website isn't even functional right now.

KC: How long have you been a member of the Institute of Social Ecology?

Brian Tokar: Since the early 80's.

KC: How is leadership organized within the organization?

Brian Tokar: Well the institute itself is a staff-based organization. Where, there, you know, different projects are responsible for their own activity and our staff at the biotechnology project is organized as a collective and we make decisions collaboratively. I should also mention there is a GE free Vermont Network that involves that at various times all the different organizations that work on the issues here and that group used to meet monthly and decisions were also made by consensus.

KC: In what ways is your sense of self reflected in your organization—are there any ways in which your personal values are not reflected?

Brian Tokar: Not really, you know since I have been with the organization for a long time and we work collaboratively I feel like my values are well-represented around the GE issue specifically and also around some broader, philosophical aspects.

KC: Which types of strategies does your group employ to influence local and federal government?

Brian Tokar: Well we have not really been involved in influencing federal government at all, that's not been our focus. Our focus has been local and state and the main strategy is using the town meetings that happen every year in Vermont where people in every
town in Vermont get to meet and discuss their town's agenda for the year every March. They are decision making meetings this is a tradition that goes back to really the 18th century-the colonial times. We have been bringing resolutions on genetic engineering issues to town meetings.

KC: Are there any ways you try to influence the biotech corporations?

Brian Tokar: No. We bring information about the corporations and what they are doing to help educate people here but we do not try to directly influence or contact the corporations. And then I should also mention that there has been some work – it has not been our group's main focus – but in the GE free Vermont network there has been focus on the state legislature. And town meetings have been influential in getting legislators interested in the issues.

KC: What/ who contributes to the funding to the ISE?

Brian Tokar: There are 2 main sources of funding: student's tuition for the educational
program we run and the others are several foundations that support it and work on various issues.

KC: Is there a time frame that you are operating under?
That really varies from project to project. For a town meeting campaign normally we start working in August and the town meetings are in March so it has a very specific timeline when we do an event we try to plan it several weeks in advance. When we are working on legislature it goes by the legislative calendar. So, the calendar really varies depending what we are working on at any given time.

KC: How would you define success or failure?

Brian Tokar: A number of ways. Probably the most important measure of success is how visible these issues are in our communities and how well-informed people are because we believe that the more people know about genetic engineering and its consequences the more people are skeptical of it to oppose it. The main criteria of success is having a well-educated public where the issues are being discussed and are visible in the press and are visible in other public forums. A secondary measure of success has been the number of towns on record and we are up to 83 in Vermont and 97 in New England wide. A third measure of success is influence in policy and there I think the successes have been modest.

KC: How is your authorship with Z-magazine and your other books contributed to the movement? Do you think it contributes to people's awareness?

Brian Tokar: Well, you know, it varies again from piece to piece. Z-magazine is mostly read by activists but mostly by people who don't necessarily work on food and

agriculture issues. So it helps span awareness of these issues among people who are activists but mostly in other areas. My books – some of them have gotten out to a wider audience. And I've written articles in a number of different places and the goal is always to expand the audience for various considerations of these issues.

KC: So in your opinion what are the most effective strategies to achieve your goals?

Brian Tokar: Grassroots education. Getting people involved in public discussions and public decision making at the community level. We have also done bigger some events on more of a national level that have had a pretty high profile that have been successful.

KC: What are your predictions for the status of GMO's in Vermont for the future?

Brian Tokar: I think Vermont will continue to be more skeptical of GMO's than other parts of the country and I think the main reason is that people here have a much stronger
identification with local food—with the quality of their food – people here are very concerned about what they are eating and what's contained in it. And its one of the things we have in common with Europe and other parts of the world where these issues are much more prominent. I think we have a good chance of limiting any further expansion of GMO's in Vermont.

KC: Who usually are the people that are most skeptical of GMO's (farmers, parents, people with a scientific background?)

Brian Tokar: It's hard to say. Among farmers, certainly organic farmers have been very
skeptical and very concerned. The more conventional farmers are really divided on the issue. Although some agree with us that GMO's are a problem for farmers but others – especially people of organizations like the Farm Bureau and many seed dealers –are really aggressively promoting GMO's and have become local advocates for the technology. Parents have definitely played a major role in this. Not necessarily people with a strong science background, although that helps. I think people who are generally engaged and active in their community see this as an issue that affects them. Certainly people who are active in local food co-ops and are involved in natural foods, parents I already mentioned, teachers have been active to some extent.

KC: Do you have any recommendations for sources?

Brian Tokar: Check out the GE-free Vermont site. And another really good source is the GE-free Maine site. Because they have a really active work in Maine that was really inspired by our work here. And they are much more up to date in terms of posting
news and other information of interest.

Interviewee: Patricia Vincent **In-Person Interview**
Interviewer: Kathryn Carpenter **NOFA Winter Conference**
February 11, 2006

KC: What is your name and occupation?

Patricia Vincent: My name is Patricia Vincent. I am a copy product engineer and a sensory evaluation person.

KC: Talk about the first time you heard about the GE free movement in Vermont.

Patricia Vincent: With the milk, and the hormones.

KC: Talk about which organizations or individuals may pose a threat to the GE-free movement.

Patricia Vincent: Dupont, the United States Government, the E.U., The Worlds Trade Organization. I just heard that they allowed some genetically modified foods to be imported into the E.U., and that scares me, some states got it through with the trade barrier and that's illegal. I just read about that.

KC: Talk about your view on the role of the government with regards to the GE free movement.

Patricia Vincent: They scare me. I believe that even though the United States government says there is no difference between genetically modified foods and organic food or all natural foods, I think that is a lie. Well it's my understanding that with all the Bush organizations, genetically engineered foods were ok'd by the government based upon studies that were in fact not complete and not thoroughly tested. And so as a result, I believe it was Dan Quail actually got up and made that announcement, and so that right there would scare anybody. And so based upon that they said there was no difference between genetically modified foods and regular, natural foods. It really upsets me that the farmers say that food for the dairy are RGB free, and the farmers have to put a statement on the milk that the government says there is no such equivalent, and so I just feel that if they go that far to do that, then why can't we have labeling for genetically modified food which is different, and so I get really upset.

KC: Have you made any lifestyle changes as a result of the GE-free movement? For example, do you buy foods that do not contain any genetically engineered ingredients?

Patricia Vincent: Yes, I try to buy organic as much as I possibly can. I always drink milk, or organic milk. I do my best to buy foods that I believe are not contaminated with genetically modified organisms, but it's hard because it's all throughout our whole system. It's hard because you don't know and things are happening right now with genetic modifications with coffee.We're going to be working with a coffee farmer in Hawaii where they are widely investigating genetically engineered coffee

plants, and it's true that Hawaii is also full with experiments on genetically modified coffee plants, and papayas and all kinds of things like that.

They are working with different strains of coffee to genetically modify them . One type is to naturally rid the coffee of caffeine. There are some ways which can rid the caffeine with the water, naturally with no chemicals.

KC: Are you a member of an established organization(s) which is opposed to GE food?

Patricia Vincent: Yes I am a member of the Organic Trade Association.

KC: How long have you been a member of this organization/group?

Patricia Vincent: I want to say from 1997-98

KC: How active are you in the group? Do you hold any positions?

Patricia Vincent: I am very active. I hold a position on the Steering Committee for the Organic Trade Association Organic Copy Council and am one of the founders of that organization.

KC: How is leadership organized in your organization?

Patricia Vincent: Well actually that is changing right now in the OTA. They are moving toward member forms and task forces, where there used to be councils. I believe it will be people who are interested in that one piece and they will form a task force and they will work on it until they finish the project. They can either keep going or they can dissolve it. It will always stay fresh. Yes it's brand new for the OTA, it just happened in June.

KC: In what ways is your sense of self reflected in your membership in this organization? Are there ways in which your sense of self is not reflected? Are there things you do not agree with?

Patricia Vincent: Well I believe passionately in organic. I just can't see chemical companies win. I can't see pharmaceutical companies win and destroy the planet. It's just who I am.

KC: Which types of strategies does your group employ to influence local and federal government? How does your group try to influence the biotech industry?

PatriciaVincent: The Organic Trade Association has a wonderful lobby on Capital Hill. They organize Congretional Education Day where people actually go and meet the government officials, and explain organics to them. The OTA has been an amazing exercise in democracy. They worked very, very hard to have the Organic Foods Production Act modified and made into a law. I believe that over the years when it was enacted in 2002, they had testimony and all the research done by the National Organics Standards Board and people wrote into the whole NOB. At one point there were rules and regulations written and over 250,000 people expressed

opinions that things weren't right. They expressed opinions and a consensus was achieved.

I believe that the OTA is an example of democracy at work and organic is an example of democracy at work because people are passionate and you can make a difference. It's a great grass roots organization. I'm also happy to be here in Vermont, and it's our first group here and I'm very happy to be here.

KC: What contributes to the funding of this organization? What percentage of your budget is reserved for the GE-free movement in Vermont?

Patricia Vincent: The OTA is an international trade organization. Members contribute dues. We use private funds and membership dues. We have an organic trade show in Chicago. It is called "All Things Organic." We also have shows called Expo West and Expo East. So that is where the funds come from.

KC: How would you define "success" and "failure"?

Patricia Vincent: Correct me if I'm wrong-did we get that legislature passed about labeling all genetically engineered seeds?

KC: I believe some portion of that was passed.

Patricia Vincent: I believe some success is determined by that. If some foods have to be labeled and saying on their label what has to be said, that is a success. I feel lucky to be in Vermont. We have money, but we need to work together more because the federal government has endorsed genetically engineering. We have to educate.

KC: What do you think the chances are for the people of Vermont to wipe out GMO's?

Patricia Vincent: I think it is going to be pretty difficult to wipe them out. I think Vermont is going to put up a good fight. I always try to look at things with the glass half full. I think it will be a strong hold for people with food thought and a sense of progressiveness We just need to keep working together and keep the public aware what is happening and keep listening to these speakers. Just talk about and embrace the beauty of organic. We should embrace the way God meant it to happen. It's not about making money, but nourishing the soul and body.

Interviewee: Todd Walker **In-Person Interview**
Interviewer: Kathryn Carpenter **NOFA Winter Conference**
February 11, 2006

KC: Can you state your name and profession?

Todd Walker: My name is Todd Walker and I'm a financial advisor with progressive asset management.

KC: What is your view and just overall summary about genetically engineered foods?

Todd Walker: I think its one of the most dangerous threats to mankind.

KC: Can you tell us about the first time you heard about the GE free movement in Vermont?

Todd Walker: It was probably 2 years ago and I attended a seminar session in Rutland about a year and a half ago on GMO foods and anti GMO. We exhibited there as well.

KC: Can you talk about which organization or group that you think opposes the GE free movement?

Todd Walker: Well Monsanto as well as any trade organization that their guarding. Seed companies like Skunsen Pioneer … an alliance between the pesticide corporations and seed companies. Monsanto's one of the… and that's why it's so dangerous.

KC: Can you talk about the role the government has played either federal or local to Vermont agriculture?

Todd Walker: I don't know much about the federal government but my suspicion is that they're probably trying to make everybody happy which is part of the role. It's a hard decision but one that they could probably do. When you're trying to run down the middle of Vermont you have a problem because you farmers who don't understand the large philosophical issues with this seed company. They just don't understand if the work will be easier or not and it may be easier short term but harder long term. The government has been trying to make both sides happy. There a block of senators, I know the whole Farmer Protection Act with Rural Vermont. You can educate but I don't think they are making a major stand yet, just right down the middle.

KC: Have you made any lifestyle changes as a result of the movement? Such as foods you buy or just be consciously aware of it?

Todd Walker: We've always eaten natural foods and organic foods. Certainly it made a big difference to me when I watched our suppliers with whole foods or co-ops we've been watching very closely for vendors who declare GMO free food. We

absolutely see the dramatic dire threat to the rural and just the structure of our children's DNA. SO we're very concerned with what the vendors are doing? If we see a vendor who doesn't care about GMO's than they're out.

KC: Do you attend any events sponsored by GE free activist groups?

Todd Walker: Yes but just once to be honest which is the I guess two I was at one in Rutland and one march in Montpelier on Rural Vermont. I'm not able to attend as many as I would like to…I would like to say that Jim Molton who is also…

KC: Are you a member of an established organization against GE? Are you an official member of Rural Vermont or anything like that?

Todd Walker: No I'm not a member of Rural Vermont I'm a member of Vermont business and responsibility and I know they're against it. I'm a member of NOFA.

KC: How long have you been a member of those organizations?

Todd Walker: 3 or 4 years

KC: Are you very active or do you hold a role in those organizations.

Todd Walker: No I'm too busy you know raising kids. I follow the issues very closely. But I feel it's very important here. It's a philosophical issue with GMO's somewhat obviously a genetic threat. Patenting of seeds is a really weird issue because essentially seed companies are having seeds that will terminate and die after the first year and we are giving them licensing permits to grow these seeds…If you grow the seed than you would be using them again for summer crops like corn. But this whole concept of giving licensed seeds is really troubling.

KC: Do you know how leadership is organized in these groups?

Todd Walker: Not really

KC: How well are your personal values demonstrated in these groups that you are a member of?

Todd Walker: I think my personal values are totally represented. They are basically people … if I had the time. I got to raise … They are our lobbyists. Essentially.

KC: Do you know what sort of strategies that they employ to oppose GE, to make things happen?

Todd Walker: You know I'm glad that we're working on a labeling system. I'm not for a Greenpeace sort of thing putting sugar in the tanks of the bulldozers. I think in the end that Ghandi and Martin Luther King the violence only begets more violence. I don't think that it's right to start bombing Monsanto plants. I think we should work within the system and that's what I think we are doing. We're getting popular support and getting our message out.

KC: Do you know who contributes to the funding of these organizations?

Todd Walker: I do somewhat.

KC: Donations or Dues?

Todd Walker: Yea but I don't know who we have on a corporate basis.

KC: How do you define success or failure in an organization for the GE-free movement?

Todd Walker: Unfortunately I don't know if we're winning or not. I think unfortunately what's happening like a horror movie or a disaster movie like inferno. Unfortunately we're going to have to have one huge mega disaster. Something's going to have to happen and than finally everybody will wake up out of their coffee and everything else and finally say oh we've got to do something about this. We are getting the message out to a lot of leaders who really believe like me. Unfortunately I don't think the general population just wants to know. They won't care until there's some big bloody disaster. I think that's unfortunate. But don't stop.

KC: So you think it's going to take something drastic to make something happen?

Todd Walker: ...

KC: Do you have any closing remarks?

Todd Walker: I'm glad you're doing this. I like seeing young people getting behind this. And you always think we're the 60's generation and nothing will survive our efforts.

Interviewee: Tyler Webb **In-Person Interview**
Interviewer: Ryan Starbuck **NOFA Winter Conference**
February 11, 2006

Tyler Webb: Tyler Webb

RS: What's your profession?

Tyler Webb: I'm a farmer.

RS: Is it a private farm or is it do you own it?

Tyler Webb: It's a grass based. Grass fed grass… organic beef and dairy and milking in Fairfield, VT

RS: Have you heard about activists groups in Vermont opposed to Genetic engineering?

Tyler Webb: Yup

RS: Tell me about the first time you heard about the GE Free movement in Vermont***.***

Tyler Webb: GE free movement in Vermont? I don't know it was probably not too long ago 2 years ago maybe in regards to corn.

RS: Would you mind talking about which organizations or individuals pose a threat to the GE Free movement in Vermont.

Tyler Webb: That pose a threat. It seems that it's quite a bit of pressure around the seed companies who are selling…seed or both the various other types of technologies, herbicides or pesticides that are associated with the crops to get the distributors within the state to put pressure on the legislature to make sure they still have the right to sell us something in Vermont.

RS: What is your view on the government in regard to the GE free movement? What actions have they taken?

Tyler Webb: Very slow actions to listen to both sides of the movement however frequent public stance that this is a technology that will probably be effective and is needed to sustain Vermont farms. Or at least one fraction of farms and that I recall once that the secretary saying that the Vermont farmers might have to band together in a region of the state so that they wouldn't be affected.

RS: Have you made any lifestyle changes? As a result of the GE free movement? For example to you buy foods that do not contain genetically engineered foods.

Tyler Webb: Yeah I don't buy many foods that, I tend to become aware of whether there is GE foods within the foods. I eat a lot of whole foods and stuff that I grow

anyway. But it's kind of hard to tell I think, certainly if you're going to go out to a restaurant, you can't really…

RS: Have you attended any events sponsored by activist groups who oppose genetically engineered food?

Tyler Webb: I'm present at a few of the Rural Vermont Ice Cream socials and things in the summer. But I'm not much of an activist or at least not at the moment.

RS: Are you a member of any established organization that is opposed to GE food?

Tyler Webb: No, not currently.

RS: Do you know anyone else that we should contact about this issue that's a good name to talk to?

Tyler Webb: I assume you've covered a lot of the people here the Rural Vermont people. Activist groups. I think probably the one sector of people that might not be aware in right now the debate seems to be at least in Vermont is really associated around the corn crop in relation to dairy farming that is something that is somewhat removed from most peoples daily understanding of their lives. One that would really impact is the introduction of low growing grass seeds into the states. If there was a cross contamination or cross pollination you know that's going to affect virtually all farms in the state and a lot of our potentially a lot of agritory's. Not to mention the potential ecological nightmare from messing around with things. It seems that the unknown itself is enough to warrant some caution.

RS: Do you know?

Tyler Webb: I don't know any particular people besides I'm making an assumption that you've already talked to activist groups and the secretary of agr.

RS: Do you have anything else to say? Any other things that you think are important to GE food and the movement.

Tyler Webb: I don't know. That's a tough one. I guess mimicking most ecological systems is probably wise to recognize that the strength of the system is in the diversity and recognizing that you can't take a microscopic look at an ecological system and define the functional components of that. And that's what we're trying to do genetically engineering a crop we're trying to identify what's required to reach a certain goal and isolate all of the managing perspective in that in a very monolithic approach that's pretty dangerous that leaves the door open to catastrophic failures especially you know were making an investment of switch grass and corn as a fuel source and the technology starts getting linked to fuel sources and the ecological system crash than the financial system crash. It just seems kind of scary

RS: Do you see any benefits with GE food? Or what benefits do you see?

Tyler Webb: I haven't seen any. I recall way back in college doing studies on the global population needs GE foods to reach certain yields to feed everybody and I kind

of came to the conclusion over time that a lot of those studies aren't taking into account depreciation for land use. Once you do start, you might grow a GE crop one year and that will tact your yield but once you start violating the soil health the biodiversity of the whole system over time the input costs, the costs of production, doesn't make it a viable enterprise anymore. So I don't really see any advantage at all.

Interviewee: John Wives **In-Person Interview**
Interviewer: Kathryn Carpenter **NOFA Winter Conference**
February 11, 2006

KC: Can you please state your name and profession?

John Wives: John Wires – I used to be a teacher.

KC: What is your general view of GM foods?

John Wives: I'm suspicious.

KC: Can you talk about the first time you heard about the GE-free movement in Vermont?

John Wives: I couldn't tell you. Oh, I know Brian Tokar- he's a good friend of mine.

KC: Can you talk about which organizations that you think may pose a threat to the GE-free movement? So basically what organizations support GE?

John Wives: I haven't really thought about that. Just basically the general drift of our society – complacency.

KC: Can you talk about your view on the government's role on what they've done involving GE foods?

John Wives: I didn't know this was quite going to be the questions – but I don't know the governments role – what I know of seems like they want to steamroll it into being but
that's my general impression. Bigger is better.

KC: Have you made any lifestyle changes as a result of the GE free movement? Are you conscious of what you buy and what you eat?

John Wives: I'm conscious of it. I go back and forth in terms of what I buy.

KC: Have you attended any events sponsored by activist groups opposed to GE?

John Wives: Maybe, I don't remember really.

KC: What do you think is the future of the status of GMO's in Vermont?

John Wives: I've been impressed at local town meetings that actually opposed use of it and I've been surprised at other places which I cannot pinpoint right now that have also
been opposing it. I think it's probably a nice spirit there. I hope it reflects something well of Vermont.

KC: That's it, any closing remarks?

John Wives: We seem to be crazy about something new- thinking somehow it must be better. It could be that some of the tried and proven ways might be better. Let's not rush into things.

KC: OK, thanks.

Interviewee: David Zuckerman **Phone Interview**
Vt Representative **February 3, 2006**
Interviewer: Ryan Starbuck

David Zuckerman: Hello Ryan

RS: Yes hey sorry about that

David Zuckerman: No problem So lets do it

RS: Alright cool so My name is Ryan Starbuck and I'm a student calling from Worcester polytechnic institute…

David Zuckerman: Yup and you all received my fax the legal form or whatever it was but if you didn't get it yet just let me know yes you can tape you can quote me you can do whatever you need to with whatever I say just keep it in context

RS: First question is what is your full name

David Zuckerman: David Zuckerman, do you want my middle name?

RS: So what is your profession?

David Zuckerman: I have 2 professions I am a organic vegetable farmer and I am a state legislator

RS: When was the first time you heard about the GE free movement in Vermont

David Zuckerman: Um well I have certainly been involved with it for at least 8 years now. But I probably heard about it a little bit before than but its hard for me to remember at this point/ I heard of the topic of Genetic engineering in food when I was still in college and that is over 10 or 11 years ago.

RS: What organizations or individuals do you think would pose a threat to the GE free movement?

David Zuckerman: Well I think a couple different things. Certainly the bio tech companies themselves are working on self interest to promote genetic engineering in agriculture. And so if there is movement to make it GMO free in Vermont they would certainly be a threat to that. I do want to let you know that there's effort to make Vermont GMO free but really that is taking a back burner to the current scenario which is at least making the seed companies responsible or legally liable for the consequences of their product. I would say the biotech industry themselves the cultural biotech folks the seed dealers are certainly concerned. I think They're more concerned than they need to be but they are concerned and they fight against it. And than because of information that the companies and seed dealers give to farmers there's a fair number of farmers that are certainly opposed to it.

RS: And you're talking about dealing with seed companies is that the farmer protection act

David Zuckerman: Yup

RS: Ok just double checking on that. Ok so what do you feel in the government aspect of the GE free movement?

David Zuckerman: Well I've definitely been a fairly key legislator in respect to the discussion on genetic engineering in general. I had been a leader on the GE free aspect of it although I haven't offered that bill this session and I would say that my role is less so in terms of GE free movement as more proper regulation of genetically engineered seed and genetically engineered technology. My role has been pretty significant there is certainly a number of other legislators who have also been heavily involved for the last few years and some for longer. But I would say I have been one of the leaders if not the most upfront upon this issue.

RS: Have you made any lifestyle changes as a result of the GE free movement. Like do you buy any foods that don't contain genetically engineered ingredients, you more organic?

David Zuckerman: Well I am an organic producer. Which I started in Medfield 12 years ago so that was the product of a lot of different environmental concerns well beyond and probably more encompassing than the GE movement. And in general as genetically engineered foods have become more common place in our food system certainly my wife and I do make purchasing decisions around either organic foods or types of food that indicate that they have no genetically engineered ingredients in them.

RS: What events have you attended that are sponsored by activist groups opposed to genetically engineered foods?

David Zuckerman: I've been to a number of different forums and discussions and panels discussing this topic some sponsored by folks who are fully opposed to GE and want GE free. And others that are sponsored by more broad based organizations that want to have thorough discussions reflecting all different prospective to the issue. I've spoken down in Brattleboro at an event that was organized around the issue of genetic engineering. I've spoken up at the northeast kingdom in Vermont. I've spoken in Rutland so I've been to numerous events over the years.

RS: Are you a member of any other established organizations that are opposed to GE foods like gefreevt?

David Zuckerman: I'm a member of rural Vermont and I haven't actually become a paid member of any other organizations that are really spearheading this sort of effort

RS: So how long have you been a member of rural Vermont

David Zuckerman: I don't remember. 3 or 4 years maybe.

Ryan: Do you hold any positions in the group and how active are you?

David Zuckerman: I don't hold any official positions in the group I'm just a member. But I'm certainly active in the issues that they work on due to my role as a politician.

RS: How do you feel that leadership is organized in rural VT?

David Zuckerman: What is the structure of it or how well is it being executed?

RS: Both

David Zuckerman: It seems well organized to me, I'm not over there regularly looking over their day to day operations. It seems to be well organized and I think they're doing a good job and effective.

RS: In what ways is your sense of self reflected in the organization?

David Zuckerman: I think in a lot of ways it is well represented. They are interested in
solid, long term sustainable agriculture. And by sustainable I mean economic and environmentally sustainable. And they are concerned corporate control in agriculture which I have a lot of concerns about. So I think we're a good match

RS: Are there any things in the group that you don't agree with?

David Zuckerman: For the most part no I tend to agree with a lot of the work that they do and stand for. There are time that there might be an individuals strategic decision politically that I might not entirely agree with but I can see where they came to a certain conclusion from and can continue to fight for it. There's nothing that I radically have a differing opinion with them on.

RS: What type of strategies does your group employ to help influence local and federal government?

David Zuckerman: Well a lot of different things. I know that they help get letters to the editor in the newspaper, you know encourage their members to write letters, to keep the discourse going with the public dialogue. They definitely do educational meetings around the state where they invite members and put up signs and invite new people to talk about various topics relating to rural agriculture. They do letters to officials, folks from the organization and from members which is a good effective way to reach legislators. They even work to turn out people to come out in person to legislative events. Its really quite amazing

RS: How does your group try to influence the biotech industry?

David Zuckerman: Well I think for the most part that's not really where the attempted influence and direction is. I think folks are more involved with trying to influence the political process that regulates the biotech industry. The biotech industry itself is corporate capitalistic entity and the only way it gets influenced is buying or not buying their products.

RS: What contributes to the funding of rural Vermont?

David Zuckerman: I don't know I think they apply for grants from various organizations as well as membership dues.

RS: What percentage of your budget is reserved for the GE free movement in Vermont?

David Zuckerman: I don't know.

RS: Do you have any idea like a percentage or a guess?

David Zuckerman: I think right now a fairly decent chunk, I would say more than half. But I don't know that for certain you would have to talk to them.

RS: How legitimate do you feel that the organizations goals are?

David Zuckerman: I think the legitimacy is quite solid. I think there is real concern about who is responsible. I mean the goals around GE right now are around who's responsible for the consequences of the seeds and I think those are pretty legitimate goals.

RS: What type of time frame is the group operating on? Do they have any specific dates or deadlines that they are trying to meet?

David Zuckerman: I think people have really put they're energy in getting the GMO liability bill passed this year and into law this year and you know we're 90 percent of the way there. We passed it in the senate, we almost passed it in the house. But we passed a different version and now its in conference committee. So I think the timeframe it this year.

RS: How would you define success and failure in the group in things like that that would happen?

David Zuckerman: I think some success has already been obtained by having better community dialogue around the issues of GMO's and that there are people even if GMO legal battle is lost here in the state house. There will be success in terms of consumer habits and awareness and purchasing habits as we talked earlier about certain personal choices. So success is defined on many levels because it also would similarly be a success if we passed this law which would confirm liability.

RS: That's basically it for questions. Do you have anything else to say?

David Zuckerman: No I think that's it. I hope that worked out for you.

RS: Yea that was great. So I just have one more. Who else do you recommend that we contact. I know that you sent the email to Kathryn about Amy Shollenberg but I was wondering if there was anyone else, any other legislators or anyone else that would be willing to talk to us?

David Zuckerman: Um yea I think you should probably talk to:
Representative Mitzy Johnson
Senator Jeanette White
Sen. John Campbell
Sen. Vince Aluzi
Rep Dexter Randall