
MONSANTO

The Gene Giant

Peddling
LIFE SCIENCES
or
DEATH SCIENCES?



RFSIE / Navdanya / Polaris Institute

MONSANTO: The Gene Giant
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PART I

M O N S A N T O :

A Chemical Company Then, A Chemical Company Now

Monsanto, a global firm with headquarters in St. Louis, Missouri (USA) has facilities in many continents. Its sales are roughly 7.5 billion US dollars annually from around the world. After a 96 year history in the chemical industry, Monsanto Company is desperately trying to sell itself as a "life sciences" company. Even though Monsanto claims to have spun off its chemical operations into a new company called Solutia, its largest selling product is a herbicide called Roundup, which is a chemical. In any publicity campaign, Monsanto proudly states that it manufactures "the world's largest selling herbicide." Roundup accounts for more than fifty percent of the company's annual operating profit. Dain Bosworth Incorporated states that, "currently Monsanto lives and dies based on its results for Roundup."

MONSANTO: A Company with a Criminal History

This chemical giant is associated with a disreputable past. Indeed, the name "Monsanto" has an image of nasty chemicals, which is a key reason that Monsanto has never put its name on food ingredients. Monsanto was a major producer of Agent Orange, the military name for the herbicides used to clear jungles during the Vietnam War. Soldiers exposed to Agent Orange have suffered a multitude of health problems, which also caused genetic defects in their offspring. The company manufactured PCBs chemicals that have been proven to cause cancer and birth defects. The historic image of chemicals is the main reason why Monsanto pretended to isolate its chemical business into a separate company, Solutia in 1997. Divesting one's name from chemicals is not sufficient evidence for sustainable action, when chemicals still occupy the primary focus of the company. The attempt to switch from an image of *toxins, pesticides and chemicals*, to one of "food, hope and health" has failed drastically.

The company is also plagued with lawsuits that have become commonplace at Monsanto. The U.S. Environmental Protection Agency (EPA) has designated Monsanto as a "potentially responsible party" at 93 Superfund sites (Superfund sites are those where hazardous chemicals have been dumped). As of December 31, 1995, Monsanto has an accrued liability of \$71 million for Superfund sites. Monsanto has another accrued liability of \$90 million for other alleged environmental issues. Monsanto has spent \$60 million in 1995 for remediation of Superfund and other contaminated sites.

Monsanto's Toxic Links

"The story of Monsanto and dioxin resembles nothing so much as an 'X Files' episode." There is now evidence that the USEPA and the United States military communicated directly with Monsanto Chemical Company about PCB contamination, and the possible use of the by product of 2,4,5 T (Agent Orange) production. What is mysterious is the way that the documents tying Monsanto to waste oil hauler Russell Bliss, who is considered responsible for spreading dioxin across the state of Missouri, have disappeared from state archives. The US Army's records on discussions with Monsanto about using dioxin as a chemical weapon are still classified and closed to the public.

In 1971, in the midst of public controversy over the safety of PCBs, Monsanto contracted with Industrial Biotest Labs (IBT) to test its PCB products for safety. A Monsanto toxicologist moved over to supervise the tests, and returned to Monsanto when they were through. The company awarded him \$1000 for "forestalling EPA... regulations" as PCB was a patented product that was very profitable for Monsanto. In 1978, the EPA and the FDA discovered that thousands of tests performed by IBT were fraudulent or useless.

"Monsanto is in denial." The company's disavowal of chemical dangers "is bullshit." (William Sanjour, EPA policy analyst).

Source: Cover up Story of dioxin seems intentionally murky, Peter Downs, The St. Louis Journalism Review, June 1998



These children were born deformed as a result of their fathers' exposure to Agent Orange during the Vietnam War. The US government sprayed some 11 million gallons of this toxin, contaminating four million acres of land, killing crops, vegetation, poisoning water and contaminating human beings, and eventually affecting their offsprings.

These are environmental crimes committed by Monsanto. But the company is making claims like, "In the 1980s we began a programme to reduce air emissions by 90 percent, a goal we achieved in 1992." By using the example of air quality commitment, Monsanto believes it can deceive consumers into believing that its environmental records are perfect. However, this is just an eyewash to all the environmental violations committed by Monsanto over the years, from the manufacture and use of Agent Orange, to the continued production of herbicides, and the genetic engineering of seeds to make them resistant to Roundup, in order to increase sale of chemicals.

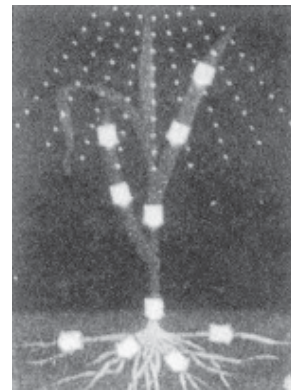
Monsanto's Best Selling Products are Still Chemicals

1. Roundup Herbicide

Roundup herbicide is the flagship of Monsanto's agricultural products and of the company overall. According to the company, Roundup, a glyphosate based product, "destroys every weed, everywhere, economically." The danger is that Roundup is a non selective herbicide i.e. it does not distinguish between weeds and desirable vegetation, and thus kills all plants, which is in no way 'economical.' In order to gain further monopoly and profits, Monsanto has developed Roundup Ready crops, which are engineered to be resistant to this lethal Roundup herbicide.

Monopolizing Measures

In 1996 the company set a new precedent requiring farmers buying its genetically engineered "Roundup Ready Soybeans" to sign and adhere to the terms of its "1996 Roundup Ready Gene Agreement." Terms, the farmer must pay a \$5 per bag "technology fee"; the farmer must give Monsanto the right to inspect, monitor and test his/her fields for up to 3 years (Monsanto can inspect the farmers' fields anytime, without prior notice or permission- a complete disregard for privacy and private property), the farmer must use only Monsanto's brand of the glyphosate herbicide it calls Roundup; the farmer must give up his/her right to save and replant the patented seed; and the farmer must agree not to sell or otherwise supply the seed to "any other person or entity" The farmer must also agree, in writing, to pay Monsanto "100 times the then applicable fee for the Roundup Ready gene, times the number of units of transferred seed, plus reasonable attorney's fees and expenses" should he violate any portion of the agreement. The farmers' outcry against the stringent inspection and monitoring of their private property caused Monsanto to modify that part of the agreement in 1997.



Source: *The Ark Institute 1998*

Roundup effectively controls a broad range of grasses and broadleaf weeds by inhibiting EPSP synthase, an enzyme essential to a plant's growth, by establishing a roadblock in the plant's metabolic pathways. The gene inserted in Roundup Ready crops increases the amount of EPSP synthase protein in the plants, providing a detour around the roadblock. This detour makes it possible for Roundup Ready crops to thrive even after Roundup is used over the top of the growing crop to control weeds. Thus in order to prevent weeds, farmers are encouraged to grow crops they do not necessarily need or consume. This is all a part of Monsanto's strategy to make farmers dependent on them. Monsanto adds, "our new technologies include crops such as soybean, canola, cotton and corn that are tolerant to Roundup." What it fails to state is that these products would help increase its profits, but would destroy diversity and food crops in the Third World, and generate artificial demand for unnecessary varieties.

2. Bollgard Cotton

Bollgard cotton is a genetically engineered cotton which claims to provide "natural defence" against pests. It was developed using technology to extract a protein, from a group of natural soil bacteria called *bacillus thuringiensis* or Bt. This gene was then modified and spliced back into the cells of cotton plants and grown. Now all cotton plants developed with this technique contain the Bollgard gene, which according to Monsanto, protects the plant from tobacco budworms, cotton budworms and pink bollworms.

All farmers, prior to using Bollgard have to enter into a Technology Agreement with Monsanto. Under this agreement, growers cannot save seed for replanting or to supply other growers. Monsanto requires a \$32 per acre technology licensing fee from farmers, which it says is less than what would have been spent on insecticide spraying. However, this is direct evidence of Monsanto fleecing the farmers and making them dependent on it, quite contrary to Monsanto's claim of working for the farmers.

The primary justification for the genetic engineering of Bt into crops is that it will reduce the use of insecticides. However, in Texas, Monsanto faces a lawsuit filed by 25 farmers. Bt cotton planted on 18,000 acres suffered cotton bollworm damage, and farmers had to use pesticides despite Monsanto propaganda that genetic engineering meant an end to the pesticide era.

Patented Protection

Transgenic seed varieties, such as cottonseed containing the Bollgard gene, receive multiple protection under the law. Because Bollgard is contained in a plant, the seed is protected under the Plant Variety Protection Act (PVPA). The gene technology, however, is patented by Monsanto. Monsanto is only licensing growers to use seed containing the patented Bollgard gene for one crop. Saving or selling the seed for replanting will violate the limited license and infringe upon the patent rights of Monsanto. This may subject you to prosecution under federal law.

Source: *Bollgard Gene by Monsanto, 1995*

The brochure advertising Bollgard says, "Deep Peace in your Field." However, this peace seems impossible with the use of Bollgard cotton. Two recent European studies report troubling, and unexpected effects of Bt crops on beneficial insects. Green lacewings and ladybird beetles (ladybugs) that had eaten Bt corn and transgenic potatoes, had a higher death rate than those that ate non Bt crops.

3. Bovine Growth Hormone (rBGH)

Bovine Growth Hormone (rBGH) is a synthetic form of a protein hormone produced naturally in the pituitary glands of all cattle. It helps young cattle grow, and adult cows to produce milk. Monsanto introduced Posilac, which it likes to call BST (Bovine Somatotropin), in the US in 1994, with the claim that it enhances milk production in cows. Monsanto uses the argument that "getting the most milk possible out of a herd is more important than ever"

In 1996, Posilac sales were \$125 million with approximately only 10% of cows using rBGH (recombinant bovine growth hormone). Posilac sales fell by 55 percent from 1994 to 1996, and it is estimated that only about 2-3% of farmers now use rBGH. Monsanto however, has abstained from disclosing any statistics regarding sales of rBGH, in order to safeguard its myth that rBGH is popular. The fact that it is not being widely used, in spite of its widely proclaimed benefits, says a lot about people's trepidation regarding rBGH, and disclaims Monsanto's safety assertions.

Biotechnology is being promoted as a requisite by Monsanto, irrespective of its health impacts on people and animals. In the case of rBGH, the effects on the cows being treated with it, and the effects on their offspring and humans who drink the milk, are questionable. Despite scientific evidence proving the dangers of rBGH treated milk, Monsanto is advocating its use.

In trying to get rBGH to market, Monsanto and government agencies
became involved in a number of scandals

In an article in the British scientific journal *Nature*, scientists said they found a much higher white blood cell count in milk from cows treated with rBGH than reported by Monsanto looking at the same data. The article concludes, "Until those data are in the public domain, some important questions about the effects of BST on animal health will remain unsolved." Monsanto will not allow the researchers to publish their results. A report released in October 1994 concluded that Monsanto violated federal law by illegally promoting rBGH prior to FDA approval.

According to confidential documents obtained by The Foundation on Economic Trends (FET) and then turned over to The New York Times, Monsanto used chief strategist for the Democratic National Committee, Tony Coelho's friendship with then Agriculture Secretary Mike Espy to try to influence the outcome for its product. Monsanto has underwritten joint promotional campaigns with veterinary clinics in an effort to sell farmers on rBGH. Not only were vets being compensated through Monsanto's voucher program, they are also profiting handsomely from their clients' rBGH usage because the drug is making so many animals sick.

Source: Pure Food Campaign, Minnesota

Monsanto's System of Total Control on Food

Monsanto Acquisitions

With operations in nearly 130 countries and a rapidly growing global network, Monsanto is no less than a monster spreading its tentacles over the entire world. With an aim of monopolising agricultural systems in all countries, Monsanto is buying up major seed companies. By controlling seed, both through acquisitions and mergers, and through patents, Monsanto in effect is attempting to gain total control of the food system.

1998 Acquisitions

- Monsanto purchased Cargill's international seed operations in Central and Latin America, Europe, Asia and Africa for \$1.4 billion. Cargill's international seed businesses specialise in the development and marketing of corn, sunflower and rapeseed, and also market soybean, alfalfa, sorghum, wheat and hybrid rice seed.
- The purchase of Delta & Pine Land Company for \$1.82 billion gave Monsanto an overwhelming 85% share of the US cottonseed market and a dominant global position in this crop.
- On May 11, 1998, Monsanto announced the take over of Dekalb, the second largest corn company in the US, for \$2.3 billion.
- Monsanto has merged with MAHYCO, India. Monsanto acquired a stake in MAHYCO by paying approximately twenty four times the paid up value.
- In July 1998, Monsanto bought up Unilever's European wheat breeding business (Plant Breeding International Cambridge) for \$525 million. This acquisition is part of its push to begin genetically engineered wheat. The Unilever deal brings the tab for Monsanto's seed buying spree in the last three years, to more than \$8 billion.
- Monsanto Company and American Home Products Corporation (AHP) entered into a merger of \$33 billion-the largest ever in the drug industry and the sixth largest buyout in history. AHP is the third largest in the US in herbicides, insecticides and fungicides, but with its merger with Monsanto, it is now estimated that the combined companies will become the largest agro chemical in the world, beating Swiss global giant, Novartis.

1997 Acquisitions

- In January 1997, Monsanto acquired Holden's Foundation Seeds. It is estimated that 25-35% of US corn acreage is planted with Holden's products. The Holden and Dekalb acquisitions make Monsanto the dominant player in the corn market.
- In November 1997, Monsanto acquired the Brazilian seed company, Sementes Agrocere. This acquisition gave Monsanto 30% of the Brazilian corn seed business.
- Purchase of Asgrow Agronomics, a soybean company, from Seminis for \$267 million.

- In October 1997, Monsanto and Millennium Pharmaceuticals (another US based genomics company) announced a 5 year collaborative agreement worth over US \$118 million, including the creation of a new Monsanto subsidiary with about 100 scientists to work exclusively with Millennium to use genomic technologies. The exclusive agreement is not limited to a single crop or geographic location; it covers all crop plants in all countries.

1996 Acquisitions

- Monsanto bought biotechnology assets of Agracetus, a subsidiary of W.R. Grace, with species patents on cotton and soybean, for \$150 million.
- \$340 million controlling interest, and 49.9% of Calgene, a California based plant biotechnology firm that launched the “Flavr Savr” tomato.

1995 Acquisitions

- Monsanto bought Kelco, Merck’s speciality chemicals division for \$1.06 billion.
- It purchased women’s health care assets from Roche for \$240 million.

As a result of these mergers and acquisitions, Monsanto has obtained ownership of exclusive patent rights for a number of agricultural products. It now has a state in every stage of the process, from patented genes to a global seed distribution network. Monsanto controls soybean, cotton, corn, and now wheat production in most parts of the world. It also has large scale operations in canola, alfalfa and sorghum, thus ensuring that it has a complete monopoly over the seed sector, and hence the food system.

“What you’re seeing is not just a consolidation of seed companies, it’s really a consolidation of the entire food chain.” Robert Farley, of Monsanto.

Patents with Monsanto:

- Cotton patents - Patent Nos. 5164316, 5196525, 5322938, 5352605 all ensure protection of the Bollgard Gene.
- Soybean patent - Patent No. EP 301749 held by Agracetus, (now owned by Monsanto).
- Herbicide Patent - Patent No. EP 546090 held by Monsanto for glyphosate resistant plants. This patent covers herbicide resistant corn, wheat, rice, soybean, cotton, sugar beat, oilseed rape, canola, flax, sunflower, potato, tobacco, alfalfa, poplar, pine, apple and grape. It also covers methods for weed control, planting of seeds, and application of glyphosate. Thus Monsanto controls the entire production process of the plants, from the breeding of the plants to their cultivation and sale.
- Roundup Patents - US Patent Nos. 4,535,06, 4,040,835 and 532,505 ensure protection of Roundup and Roundup Ready crops. The agreement prevents the grower from selling or supplying the seed or material derived from it to any other person or entity or saving any of the seed.

- Terminator patent - Patent No. 5723785 is held jointly by the USDA and DPL (now a subsidiary of Monsanto) on a genetically engineered seed. It ensures that the seed does not germinate on harvest, thus forcing farmers to buy seed at each planting season.

Patents prevent farmers from exercising their age old freedom of saving and exchanging seeds. Industrialisation of agriculture has created systems to prevent farmers from using farmers' varieties. Genetic engineering in food and agriculture is enslaving farmers in the bondage of intellectual property rights. Bondage is total since genetic engineering is being introduced in a context of total control by a handful of transnational corporations.

"Seed Terminator"

"This is the neutron bomb of agriculture", Camila Montercinos, (CET), Chile.

On March 3, 1998, the U. S. Department of Agriculture (USDA) and the Delta and Pine Land Company, a subsidiary of Monsanto, and the largest cotton seed company in the world, announced that they had jointly developed and received a patent on a new, agricultural biotechnology. Benignly titled, "control of Plant Gene Expression", the new patent will permit its owners and licensees to create sterile seed by cleverly and selectively programming a plant's DNA to kill its own embryos. The patent applies to plants and seeds of all species. The result? If saved at harvest for future crops, the seed produced by these plants will not grow. Pea pods, tomatoes, peppers, heads of wheat and ears of corn will essentially become seed morgues. Thus the system will force farmers to buy seed from seed companies each year. The system has been dubbed "terminator technology" by groups such as the Rural Advancement Foundation International (RAFI), which says that it threatens farmers' independence and the food security of over a billion poor farmers in Third World countries.

The USDA and Delta & Pine Land Co. have applied for patents on the terminator technology in at least 78 countries. What is interesting is that the USDA, gets a 5% share of profits from the sales, rather astonishing for a government agency. But then considering the long term alliance between Monsanto and the USDA, it is not that much of a surprise.

The Terminator Technology was created to prevent farmers from saving non hybrid, open pollinated or genetically altered seed sold by seed companies.

The prayer of farmers: "when we sow our seeds, we pray, may this seed be exhaustless."
Monsanto and USDA : "let this seed be terminated so that our profits and monopoly are exhaustless."

There is another potential dark side to the Terminator. Molecular biologists are examining the risk of the Terminator function escaping the genome of the crops into which it has been intentionally incorporated, and moving into surrounding open pollinated crops or wild, related plants in fields nearby. Given Nature's incredible adaptability, and the fact that the technology has never been tested on a large scale,

the possibility that the Terminator may spread to surrounding food crops or to the natural environment MUST be taken seriously. The gradual spread of sterility in seeding plants would result in a global catastrophe that could eventually wipe out higher life forms, including humans, from the planet.

In a recent communique, RAFI states: "If the Terminator Technology is widely utilised, it will give the multinational seed and agrochemical industry an unprecedented and extremely dangerous capacity to control the world's food supply." That fear may be realised much sooner than anyone could have imagined.

"Never before has man created such an insidiously dangerous, far reaching and potentially 'perfect' plan to control the livelihoods, food supply and even survival of all humans on the planet. In one broad, brazen stroke of his hand, man will have irretrievably broken the plant to seed-to-plant-to-seed cycle, the cycle that supports most life on the planet. No seed, no food unless you buy more seed. The Terminator Technology is brilliant science and arguably 'good business', but it has crossed the line, the tenuous line between genius and insanity. It is a dangerous, bad idea that should be banned. Period...."

Geri Guidetti, The Ark Institute, 1998.

Some of Monsanto's Pipeline Products

The following are some of the products, which Monsanto plans to launch in the near future. Its products are meant to be an indication of its desired link between "farm, food and pharmacy."

1998

- Condrotec Arthritis Treatment: A drug to treat arthritis while greatly reducing the risk of gastrointestinal damage.
- Insect Protected Tomatoes: Developed through biotechnology, these tomatoes protect themselves from insect pests and offer improved yields and higher quality crops.
- New Leaf Y Insect and Virus Protected Potatoes: Through biotechnology, these potatoes protect themselves against the Colorado potato beetle and potato virus.
- Roundup Ready Corn: Through biotechnology, this product will offer corn growers the advantages of in crop, broad-spectrum weed control with Roundup.
- SeaGold DHA Omega 3 Fatty Acid: This premium plant based oil is an alternative to fish oil sources of DHA (docosahexaenoic acid).
- Celebra arthritis treatment: Celebra is a member of a new class of drugs known as specific COX-2 inhibitors.
- MON 37500: This herbicide controls brome, quack grass and winter broadleaf weeds in wheat.
- Roundup Ready Oilseed Rape: Through biotechnology, this oilseed rape plant tolerates Roundup.
- Hormone Replacement Therapy (HRT): HRT transdermal patches will increase a woman's estrogen and progesterone to premenopausal hormone levels.
- Insect Protected Corn: This corn is modified to protect itself against the corn rootworm and related insects.
- MON 48500 : This herbicide is primarily for pre emergence control of broadleaf weeds and grasses in European cereals.
- MON 65500 : is a fungicide for control of take-all disease in wheat.
- Roundup Ready Sugar Beets: Through biotechnology, these sugar beets will tolerate Roundup.
- SC 69124A : An injectable COX-2 inhibitor, this compound is formulated for the management of acute pain in a hospital setting.

2001

- Disease Protected Potatoes: These potatoes will protect themselves from fungal diseases.
- Eplerenone: Eplerenone is designed to treat high blood pressure, congestive heart failure and complications of kidney disease.
- Medium Chain Fatty Acid/Medium Chain Triglyceride: These canola plants produce oils for use in medical foods and nutrition products.
- Roundup Ready Potatoes: These potatoes will offer growers the advantages of in-crop weed control with Roundup.
- SC-72393: Preclinical models indicate that this novel sleep aid may have a better safety profile than current products on the market.

- Second-Generation Bollgard Insect-Protected Cotton: This cotton will produce a protein that fatally damages specific insect pests by using a mode of action different than the original Bollgard cotton in order to help growers manage insect-resistance concerns.

2002+

- Alpha-v Beta-3 Inhibitor: This compound shows promise in inhibiting the growth of blood vessels that nourish cancerous tumours.
- Boll Weevil-Protected Cotton: Through biotechnology, this cotton will contain a gene that allows the plant to protect itself from the boll weevil.
- Carotenoids: This natural pigmentation is for use in animal feed.
- Colored Cotton: Cotton plants with genes that produce colors will reduce the need for chemical dyeing.
- Disease-Protected Corn: Developed through biotechnology, these corn plants will resist fungal and viral diseases and offer improved yields.
- Disease-Protected Wheat: These wheat plants developed through biotechnology will resist fungal and viral diseases and offer improved yields to growers.
- High Beta-Carotene Canola Oil: This canola oil will contain enhanced beta-carotene levels to combat vitamin A deficiency conditions such as night blindness.
- Improved-Energy Corn: Development through biotechnology, these corn plants will supply increased energy and improved oil nutrition for animal feed products.
- Improved-Fiber Cotton: These plants with genes that improve cotton fiber will be used to make sturdier, better quality cotton fabrics.
- Improved-Oil Canola: These canola plants developed through biotechnology will produce oils containing DHA and other highly unsaturated fatty acids that can be used as dietary supplements and for more nutritious foods.
- Improved-Oil Soybeans: Developed through biotechnology, these soybeans will yield improved oils that can be used to make more nutritious foods.
- Improved-Quality Potatoes: These potatoes will have improved commercial storage properties and less discoloration caused by bruising.
- Improved-Protein Corn: This corn modified through biotechnology for animal nutrition products will contain increased protein and a balanced amino acid profile.
- Improved-Solids Potatoes: These potatoes are developed through biotechnology to contain less moisture, which will reduce the absorption of oil during cooking.
- Progenipoietin: Progenipoietin is a unique protein that shows promise in stimulating the body's immune system to fight tumours.
- Roundup Ready rice: Through biotechnology, these rice plants will tolerate Roundup
- Roundup Ready Wheat: This wheat will offer growers the advantages of in-crop Research and development of products based on new technologies is by its nature high-risk.

Source: Monsanto 1998, www.monsanto.com

MONSANTO: A Track Record of Deception and Disguise

MONSANTO'S LIE # 1: "We are no longer a chemical company, we are a Life Sciences company."

In reality, chemicals are still Monsanto's largest selling products. The break up of segment sales at Monsanto in fiscal year 1995, is evidence that its largest field of activity and revenue is still CHEMICALS.

Chemicals	41%
Agricultural products	28%
Pharmaceuticals	19%
Food ingredients	12%

Source: Dain Bosworth Incorporated, 1996

Net segment sales for Monsanto and its subsidiaries in 1997 and 1998 are designed to show that agricultural products earn the largest revenue for the company. This is due to the increasing sales of Roundup and its related products, all included under the agricultural segment, rather than the chemical segment. Monsanto is still a large manufacturer and seller of chemicals like glyphosate, the active ingredient in Roundup. By using the cloak of agriculture for chemical based products, Monsanto is struggling to reinforce its image as a "Life Sciences Company" when in reality it is still a chemical company

After various mergers and acquisitions, Monsanto is now the largest agro-chemical company in the world as revealed in the following table:

Pesticide sales (in US \$ millions) of top ten agro-chemical companies, 1997	
Monsanto (combined with AHP)	6,318
Novartis	3,126
Zeneca	2,674
DuPont	2,518
AgroEvo	2,352
Bayer	2,254
Rhone Poulenc	2,202
Dow Agro Sciences	2,050
BASF	1,855
The Ram's Horn, 6/98, Sources: Agrow : World Crop Protection News, 10/4/98, 13/3/98, and 27/2/98	

The Monsanto motto of “Food, Health, Hope”, should be changed to that of “Fraud, Stealth and Hype.”

In the early eighties, Monsanto launched a campaign to assure consumers that there was nothing wrong with toxic chemicals. The message it delivered to the people demonstrates the ridiculous arguments it used to manipulate the public. A company with former slogans of “without chemicals, life itself is impossible”, and implications like “chemicals are ok as life is risky anyway”, now tries to convince us that without biotechnology life is impossible, and that genetic engineering is ok as life is risky anyway. The word “chemical” in Monsanto’s old advertisement below could today be replaced with “genetically engineered organisms”, which Monsanto is striving to promote.

Life is risky. When our cavemen stoked their first fire, they risked burns. Modern life has reduced some risks but increased others.

A risk is the possibility of loss or injury. Every one of us continually makes decisions, which involves risks. Every time a person climbs stairs, mows a lawn, handles a pet, plays a *sport*, *crosses* a street or rides in a car, there is a risk. These situations, where the risk of harm is immediate, are called acute risks. Other risks are not so obvious or immediate. They are called chronic risks. Exposure to noise over a long time increases the chances of impaired hearing-a chronic risk.

Do chemicals cause risks? Obviously some do. Many chemicals are highly poisonous. Others can explode violently. Both of *these* examples are *acute* chemical risk. Evidence indicates that exposure to some chemicals over a long period increases the chance of illness. So these are chronic risks too.

The chemical industry generally has done a good job recognising acute risks and taking the necessary steps to protect employees and the public. The safety record in chemical plants is among the best in all industry.

Source: *Food Chemical News*, vol.. 23, #28. November, 1981

Monsanto has developed a law for agriculture and “life sciences” based on one previously developed for the computer chip industry. This law highlights the weird rational of a company that draws analogies between silicon chips and plants.

Monsanto Law

“The exponential growth in the computing power of silicon chips, described by Moore’s Law, led to the development of the information technology industry; creating aggregate global value in trillions of dollars. At Monsanto, we believe that a similar, non linear trend in biotechnology capabilities is creating comparable growth potential in the life sciences. We believe that these genomic technologies will continue to double in capability every 12 to 24 months-a statement we’re calling “Monsanto’s Law.”

Source: *Monsanto Company*, 1998

Monsanto, however, fails to address what such a non-linear trend in agriculture would imply for the environment and human health. The non-sustainability of industrial agriculture is based on ignoring the costs to the environment. Monsanto’s myths of future abundance continue to disregard the ecological damages of genetic engineering as *the latest version* of industrial agriculture.

MONSANTO'S LIE # 2 : Monsanto's genetically engineered Roundup Ready crops reduce herbicide use, and provide a safe and sustainable method of weed control.

- The sole purpose of Roundup Ready crops is to increase the use of Roundup herbicide, so Monsanto's claim that their use will reduce herbicide use is sheer deception.
- Herbicide resistant transgenic crops may also become weeds in the form of "volunteer plants" germinated from seeds after the harvest, so that other herbicides will have to be applied in order to eliminate them, with yet further impact on indigenous biodiversity.
- The claim that Roundup products are safe is a contradiction in terms because a chemical used for its toxic effects on plants cannot be environmentally benign. There is evidence that Roundup can cause harm to the environment and human health even at current levels of use. Increased use of the herbicide Roundup may result in pollution of water and lead to a further decrease in wild plant diversity. It may also harm animals and beneficial soil micro organisms. A new study indicates that glyphosate can be readily released from soil particles, and therefore may leach into water (Piccolo et al., 1994). Roundup can be toxic to fish too.
- The Northwest Coalition for Alternatives to Pesticides has found that products containing glyphosate are acutely toxic to humans. Symptoms include eye and skin irritation, cardiac depression and vomiting (Cox, 1995). In California they found that glyphosate was the third most commonly reported cause of pesticide related illness among agricultural workers (Cox, 1995, Pease et al., 1993).
- The US Fish and Wildlife Service has identified 74 endangered plant species threatened by the use of glyphosate.
- There is clear scientific evidence that application of glyphosate can increase the level of plant estrogens. Greenpeace and other NGOs have revealed that soybean plants sprayed with Roundup are more estrogenic and are therefore possibly hormone or endocrine system disrupters.
- Dairy cows eating "Roundup Ready" soybeans are producing milks with different chemical characteristics (higher fat levels) than cows who are eating regular soybeans.
- Monsanto's ecological risk assessment for Roundup Ready Soybean (RRS) is deficient as it presents an unjustifiably optimistic scenario by assessing risks only in the U.S. and European context when RRS is likely to be grown and/or exported to environments of higher ecological risk in Australasia.
- Irish authorities made public U.S. EPA documents that revealed that Monsanto's supposedly Roundup resistant sugar beets were dying in alarming numbers after having been sprayed with Roundup.
- The use of this highly toxic to plants, non discriminating herbicide threatens to lead to large scale elimination of indigenous species and cultivated varieties, damaging soil fertility and human health.

- Farmers in the Mississippi Delta had serious and unexpected problems with Monsanto's new Roundup Ready cotton. Some growers face losses of \$500,000 to \$1,000,000. Mississippi cotton farmers have sued Monsanto for damages arising from cotton boll damage or deformities in the 1997 "Roundup Ready" cotton harvest.
- The Mississippi Seed Arbitration Council ruled that Monsanto's Roundup Ready cotton failed to perform as advertised and recommended payments of nearly \$2 million to three cotton farmers who suffered severe losses.
- The false claim that soil conservation would be promoted, is based on comparing a large monoculture farm using other herbicides, and a similar farm using Roundup. However, the expansion of Roundup Ready crops will also be introduced in biodiversity rich agroecosystems of the Third World. The direct destruction of biodiversity will in fact lead to more rapid soil and water erosion since without cover crops, there will be no protection against the tropical sun and rain.

Monsanto's herbicides are called Roundup, Machete, Lasso. American Home Products, which has merged with Monsanto calls its herbicides Pentagon, Prowl, Sceptre, Squadron, Cadre, Lightning, Assert, and Avenge. This is the language of war, not sustainability. Sustainability is based on peace with the earth. (Shiva, Vandana; 1998)

The benefits of Roundup Ready technology are fictitious and illusionary when it is applied to polyculture systems. Roundup Ready crops will lead to increased use of Roundup and hence destruction of both cultivated and wild biodiversity. Findings such as these throw into question Monsanto's unsupported assertion of Roundup as an 'environmentally acceptable herbicide'.

Investing in Roundup Ready Soybean is to sanction an experiment with the environment and human health, the dangers of which may be unpredictable, irreversible and unmanageable. This experiment is being conducted in the interests of promoting sales and use of a toxic chemical (Greenpeace, 1998).

The following advertisement, a part of a \$1.6 million Monsanto campaign to promote biotechnology in Europe, appeared in British newspapers in July 1998. It demonstrates the baseless arguments and falsifications used by the company to convince the public of the ingenuity and safety of their products.

MONSANTO LIE # 3: The genetic engineering of Bt crops will reduce the use of pesticides, and provide a safe and sustainable method for pest control.

- Additional insecticide sprays were needed due to Bt cotton failing to control bollworms in 20,000 acres in eastern Texas. The company's Bt cotton failed to meet many farmers' expectations that it would control the cotton bollworm.
- Up to a million acres or 50% of Monsanto's Bt Cotton crop in the U.S. were attacked by bollworms in 1996, prompting lawsuits by outraged cotton growers who claim they were defrauded by Monsanto.

More Biotechnology Plants Means Less Industrial Ones

The world grows its food at great cost to the environment. Insecticides, fertilisers and herbicides used in agriculture require scarce resources processed in ecotaxing industrial plants. As an example, the insecticide for just one species of pest affecting Russett Burbank potatoes in the USA generates 2,500,000 pounds of waste by-product from its manufacture, transport and application.

At Monsanto, we believe plant biotechnology can limit industrial and chemical impact to the earth. For instance, we have developed crops that are insect resistant, in some cases eliminating the need to apply insecticides altogether. (We also want you to know that we produce the world's best selling herbicide, Roundup.)

Our potato, soybean and corn seeds have been thoroughly tested to assess their safety. Far more rigorously, in fact, than conventionally produced crops. Our confidence in them is matched by the government regulatory agencies of 20 countries, including Switzerland, Denmark, the Netherlands, the U.S.A. and Great Britain. All have approved our seeds.

- Massive use of Bt toxin in crops can unleash potential negative interactions affecting ecological processes and non target and beneficial organism, such as bees and butterflies. The Swiss Federal Research Station for Agroecology and Agriculture has conducted studies which prove that green lacewings that had been fed on engineered Bt corn had a higher death rate and delayed development compared with lacewings that had eaten non-Bt corn. The researchers suggest that the higher mortality is “directly associated with Bt related factors.”
- Insect pests will quickly develop resistance to crops with Bt toxin. Already eight species of insects have developed resistance to Bt. toxins, including diamond back moth, Indian meal moth, tobacco budworm, Colorado potato beetle and two species of mosquitoes. Due to this risk of pest resistance, the U.S. Environment Protection Agency (EPA) offers only conditional and temporary registration of varieties producing Bt. The EPA requires 25-30% “refugia” with Bt. cotton i.e. 25% of planted cotton has to be conventional, which implies that it does not express the Bt. toxin. It therefore acts as a refuge for insects to survive and breed, and hence maintains the overall level of resistance in the population. Even at this refugia level, insect resistance will evolve in as little as 3-4 years. This could lead to the threat of super pests.
- The Union of Concerned Scientists and others have asked the Environmental Protection Agency to suspend sales of Bollgard pending an investigation.

The following advertisement, also a part of the \$1.6 million Monsanto campaign to promote biotechnology in Europe, shows the extent Monsanto is willing to go to, in order to sell its products. It stresses that biotechnology will reduce pesticide use, but the blatant irony is the fact that it also advertises its herbicide 'Roundup', which is a PESTICIDE!

The advertisement appeared in British newspapers in July 1998.

We Believe Food Should be Grown with Less Pesticides

Monsanto is a leading biotechnolog company. We believe biotechnology is one way to cut down on the amount of pesticides used in agriculture. For instance, the tomato here is grown by fusing a naturally occurring beneficial gene into the tomato plant, making it insect resistant. As a result, the farmer can spray substantially less insecticide onto his fields.

Some biotech crops need no insecticides at all. For others, their use is reduced by a third or more. The result is food grown in a more environmentally sustainable way, less dependent on the earth's scarce mineral resources. (We also want you to know that we produce the world's best selling herbicide, Roundup.)

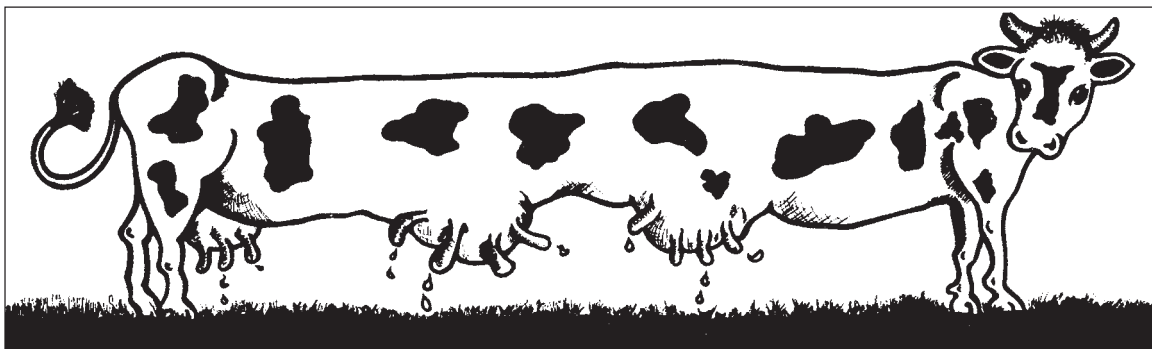
Rigorous tests have been undertaken throughout Monsanto's 20 year biotech history to ensure our food crops are as safe and nutritious as the standard alternatives. They have also been approved by government regulatory agencies in over 20 countries, including Switzerland, Denmark, the Netherlands, the U.S.A. and Great Britain.

Obviously we believe in the benefits of plant biotechnology, both for the environment and for everyone who eats food grown from our seeds.

MONSANTO'S LIE # 4 : Monsanto's genetically engineered products like rBGH improve farmers' incomes, and are safe for humans and animals.

Although the drug does increase milk production, the resultant health problems in cattle and humans outweigh the benefits from extra milk produced. The use of rBGH is quite an expensive process as well.

- The use of rBGH has resulted in an increased incidence of mastitis, a serious disease in milking cows which causes inflammation of the udders.
- When a cow is injected with rBGH, its milk production is stimulated, but not directly. The presence of rBGH in the cow's blood stimulates production of another hormone, called 'Insulin Like growth Factor 1', or IGF-1 for short. It is IGF-1 that stimulates the milk production. IGF-1 occurs naturally in both cows and humans. The use of rBGH, however, increases the levels of IGF 1 in cows, and consequently in cows' milk. This IGF-1 remains intact in the gut of humans who drink rBGH treated milk. Findings prove that IGF-1 induces mitotic activity, i.e. it promotes cell division. An increase in IGF-1 this promotes the growth of cancer tumours in animals and humans by preventing programmed cell death.



- The European Union and Canada have imposed a moratorium on rBGH, and the Codex Alimentarius Commission in Europe has rejected a US proposal to declare the use of rBGH as safe.
- When using the hormone, farmers must provide more feed during the peak of the cow's lactation cycle. This significantly raises their costs, contrary to Monsanto's claims. 17 percent of farmers in the US using rBGH on their cows have verified that their profits have not risen as a result of using the hormone.

"rBGH poses an even greater risk to human health than ever considered. The FDA and Monsanto have a lot to answer for. Given the cancer risks, and other health concerns, why is rBGH milk still on the market?" (Samuel Epstein, Professor of Environmental Medicine at the University of Illinois School of Public Health, Chairman of the Cancer Prevention Coalition)

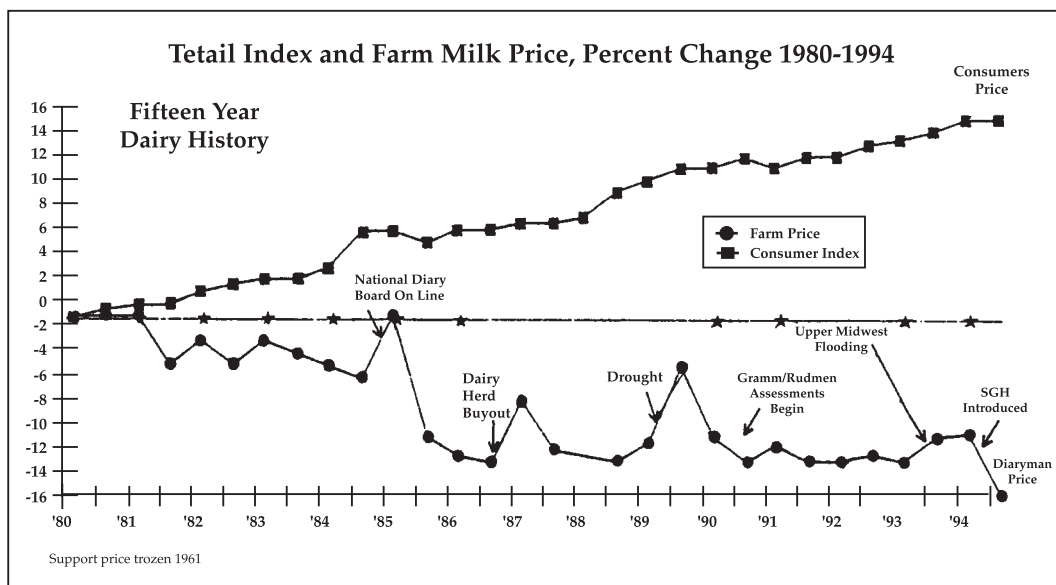
The following table demonstrates the fall in US dairy farmers' income after the introduction of rBGH.

More propaganda by Monsanto...

The following advertisement from the British newspapers, is another ridiculous attempt to validate lie #5.

MONSANTO'S LIE # 5: Our genetically engineered food will help feed tomorrow's growing population, and at much lower costs.

An analysis of the trends and impacts of genetic engineering make it evident that genetic engineering in agriculture is a guarantee for creating scarcity and hence creating food insecurity. This is because it is evolving into the monoculture paradigm, which focuses on single functions of single species, and fails to take the yields of diverse species into account. Agricultural biotechnology is also responsible for destroying the nutritional value of our food. The reduced calorie intake in our food is contributing to global food insecurity and the starvation of two thirds of the world's population.



The trends in cultivation of transgenic crops show that genetic engineering is displacing the diverse foods that people of diverse cultures have used in their diets. Its focus is on non-food commercial crops like tobacco and cotton and on crops like soybean which have not been the staples for most cultures.

Rather than lower costs of food for Third World farmers, biotechnology would, in reality, increase the costs of farmers in the following ways:

- Technological fees charged by Monsanto for the use of their technologies. (for example, fees charged as part of their Technology Agreements for Bollgard cotton and Roundup Ready crops)
- Increased use of insecticides (such as Roundup), and pesticides when in-built organic defences of genetically engineered plants fail (for example, in the case of Bt cotton)
- Increasing prices of agro-chemicals and patented seeds
- Payment of royalties to corporations for use of seeds originally taken from poor farmers
- The monopoly control on seeds through intellectual property rights, and the growing ownership of large corporations over the entire agricultural system

“Monsanto is saying that it is going to feed the world, when most of its crops are engineered to sell herbicides” (Greenpeace, 1998).

Worrying About Starving Future Generations Won't Feed Them. Food Biotechnology Will

THE WORLD'S population is growing rapidly, adding the equivalent of a China to the globe every ten years. To feed these billion more mouths, we can try extending our farming land or squeezing greater harvests out of existing cultivation. With the planet set to double in numbers around 2030, this heavy dependency on land can only become heavier. Soil erosion and mineral depletion will exhaust the ground. Lands such as rainforests will be forced into cultivation. Fertiliser, insecticide and herbicide use will increase globally.

At Monsanto, we now believe food biotechnology is a better way forward. Our biotech seeds have naturally occurring beneficial genes inserted into their genetic structure to produce, say, insect-or-pest-resistant crops.

The implications for the sustainable development of food production are massive: Less chemical use in farming, saving scarce resources. More productive yields. Disease resistant crops. While we'd never claim to have solved world hunger at a stroke, biotechnology provides one means to feed the world more effectively.

Of course, we are primarily a business. We aim to make profits, acknowledging that there are other views of biotechnology than ours. That said, 20 government regulatory agencies around the world have approved crops grown from our seeds as safe.

Monsanto's Global Spread

MONSANTO IN SOUTH ASIA

Monsanto in India:

In May 1998, Monsanto entered into a joint venture with MAHYCO (Maharashtra Hybrid Seeds Company Limited), which is one of the largest hybrid seed companies in India. It acquired a 26% stake in MAHYCO by paying nearly twenty four times the paid up value. Through the acquisition of this 26% stake, Monsanto will get a strong foothold in the already established market of this company, which has seed markets not only in India, but in neighbouring countries as well.

"We propose to penetrate in the Indian agricultural sector in a big way. MAHYCO is a good vehicle"
— Mr. Jack Kennedy, Monsanto

The aim of this venture is to promote transgenic cotton developed by Monsanto, in India. Monsanto plans to unveil a limited launch of insect resistant cotton crop Bollard by 1999, and a full scale launch by the year 2000.

Monsanto has also set up a \$25 million state of art research and development centre in Bangalore, which would serve as the hub of all research activities in Asia. The Government of India has handed over an important laboratory of the prestigious Indian Institute of Science (IISc.) in Bangalore, to Monsanto. The government has given Monsanto permission to use its genetic material and the laboratory facilities to carry on biotechnological research in spite of past experiences of India's rich genetic heritage being looted, pirated and patented by MNCs.

Monsanto is likely to use MAHYCO to market its toxic varieties like Bt cotton and Roundup Ready crops, and use the IISc. to gain access to information in other research institutions and gene banks in India. The official use of the IISc. by Monsanto would also increase the theft of the knowledge of Indian farmers and tribals who have protected and enhanced India's genetic resources for centuries. Monsanto should not be allowed to field test and launch any Genetically Modified Organisms (GMOs) in India as these pose a threat to the extensive biodiversity that flourishes here. Monsanto's entrance into the Indian agricultural domain is evidently a clear case of scientific imperialism. It is a direct threat to our ecological and scientific security.

A Monsanto publication entitled Leaders in Weed Control, proudly states, "Monsanto's tryst with India began over 20 years ago with Machete. Launched in 1975, Machete was the first rice herbicide in India..."

"Our commitment to Indian agriculture does not end with the latest herbicide. It begins."

What Monsanto fails to mention is that what begins is its war with Indian agriculture. What begins is the destruction of Indian agricultural diversity. What begins is the dependence of Indian farmers on industrialised, unsustainable techniques of the

developed nations. What begins is the reduction of years of breeding and innovation to uniform monoculture systems. What begins is a commitment to remain the largest monopoly in agro-chemicals, a commitment to exploit Third World farmers. What begins is the launch of a neo-imperialism of seed and food.

Monsanto's lethal products already in India

While Indian women selectively do weeding by hand, hereby preserving our biodiversity, Monsanto's weedicide "Machete" aims at annihilating our biodiversity.

Monsanto in Bangladesh

Micro-credit and Monsanto?

Monsanto entered into a partnership with Bangladesh's Grameen Bank in June 1998. The Grameen Bank, headed by Muhammed Yunus, has been one of the drivers behind the concept of "micro credit" lending in developing countries-attracting much international praise, although some controversy locally. Micro-credit refers to the



While Indian women selectively do weeding by hand, hereby preserving our biodiversity, Monsanto's weedicide "Machete" aims to annihilating our biodiversity.



non-collateralised small loans to lowest income people who are otherwise ineligible for traditional bank loans. The bank founded in 1983, operates in 38,000 Bangladeshi villages. Now what is a bank which aims at helping rural women, doing in a partnership with a MNC giant like Monsanto? This is precisely what concerned development Non Government Organisations (NGOs) around the world *are asking*.

Under the partnership between Monsanto and the Grameen Bank, Monsanto will invest \$150,000 in a new centre called, "Grameen Monsanto Centre for Environment Friendly Technologies." This centre will provide local farmers with access to some of Monsanto's technologies. Robert Shapiro, Chairman, Monsanto said that the centre would "provide the opportunity to demonstrate how sustainable technologies, combined with micro credit can transform peoples' lives, allowing them to improve their quality of life and the environment." Yunus added, "Grameen and Monsanto can accomplish things which were never thought achievable. State of the art technologies can be made available to those in need in a shape and size designed to snugly fit their needs."

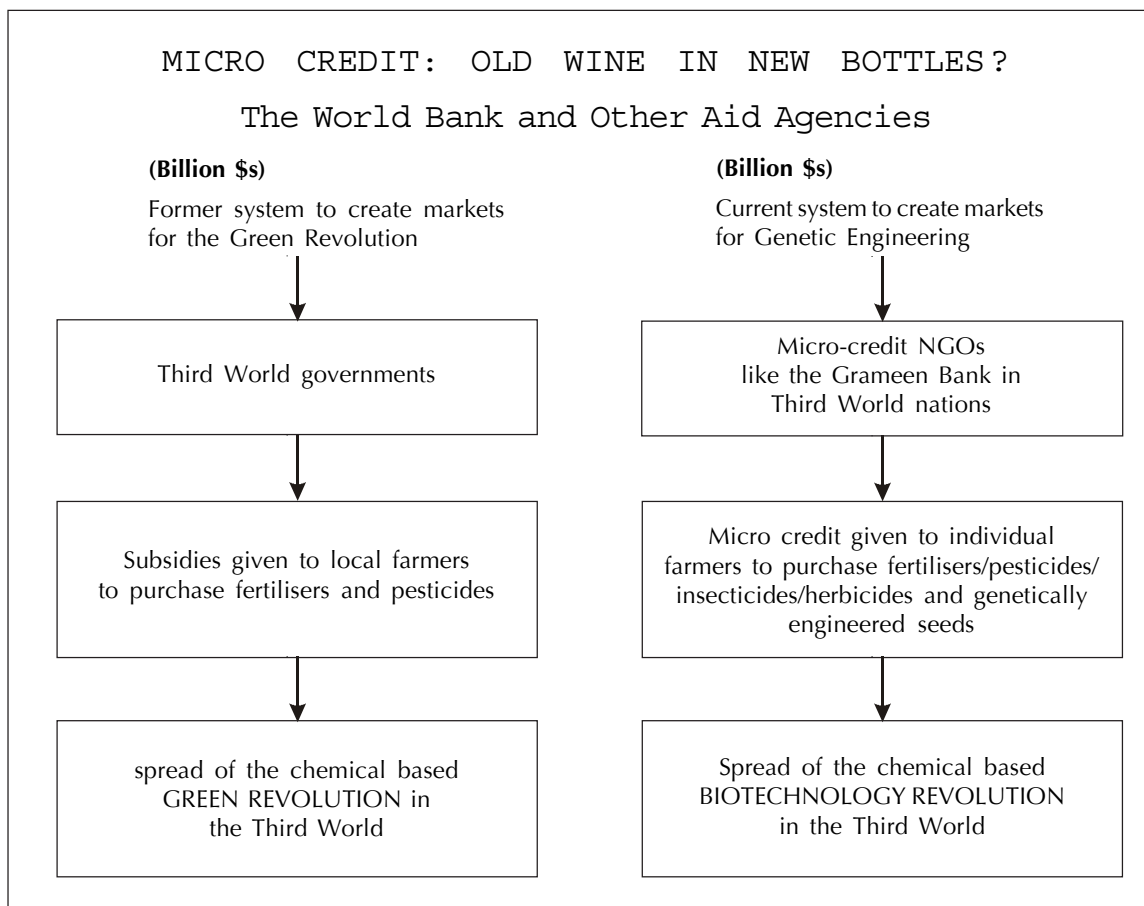
The Monsanto press release of this partnership states, "Grameen will provide access networks so that the poor can directly benefit from new technologies. For example, Grameen is already engaged in a significant initiative to provide cellular phones in the villages of Bangladesh through the inter-mediation of Bangladeshi women."

It is ironic that the acquisition of cellular phones by those who live in dismal conditions of poverty, is claimed a success of such ventures. Rather than providing for the immediate needs of these people, like safe drinking water, wholesome food and medical care, a cellular phone is considered a priority need. These aims at "modernising" rural households will only lead to lop-sided development by creating artificial needs. Such programmes merely provide people with things they do not need, and would not have otherwise had the money to buy.

Monsanto's technologies-Bollgard cotton, Terminator seed, Roundup herbicide, and Roundup Ready crops are going to be thrust on Bangladeshi farmers. The development of anything unique for these farmers is out of the question, let alone a technology to "snugly fit their needs."

Monsanto's technologies are in no way "environmentally friendly" as claimed. They will push Bangladeshi peasants into debt as they would have to spend more on herbicides, seeds, royalties and technology fees. The \$150,000 that Monsanto is investing in this new centre, is a mere 0.6 percent of the \$1.6 million that Monsanto is spending on an advertisement campaign in Europe to convince consumers of the merits of genetically engineered foods, and a paltry 0.002 percent of its annual \$7.5 billion profit. This partnership is merely a mask, which Monsanto is using to increase its international sales and gain a foothold in Third World agriculture.

Micro-credit is a device being used by First World donors to please themselves and the world that they have modified and developed their aid policies to suit the needs of the Third World poor. Though the concept of micro-credit could have been used to benefit the rural poor, it has unfortunately become a mere device for large multinational



agro-chemical firms to further the spread and use of their products in the Third World. Third World governments, formerly used loans and aid money to subsidise the cost of pesticides and fertilisers for their farmers. These regressive policies initiated by organisations like the World Banks actually promoted the use of chemicals in agriculture when they were not needed. Now micro credit has taken the place of these 'perverse subsidies.' Ventures like the Grameen-Monsanto partnership will only ensure that the credit loans given to rural Bangladeshi peasants will be used for the purchase of chemicals and products they do not need. This will further increase dependence of indigenous local communities on large MNCs. The profit motive is the only motive that is served in such contracts. The needs and desires of the people, as usual, are relegated to the background.

STOP PRESS...!!

Bangladesh Monsanto Project Called Off

On July 27, 1998, the Grameen Bank in Bangladesh announced that it is pulling out of a controversial joint venture with the world's largest agrochemicals company, Monsanto. The managing director of the Grameen Bank, Mohammed Yunus, said he was abandoning the project because of opposition from environmental groups. *They are* concerned at plans to introduce genetically engineered seeds to Bangladesh, and have accused Monsanto of using the Grameen Bank's network of rural *borrowers* to market its products.

(From the newsroom of the BBC World Service)

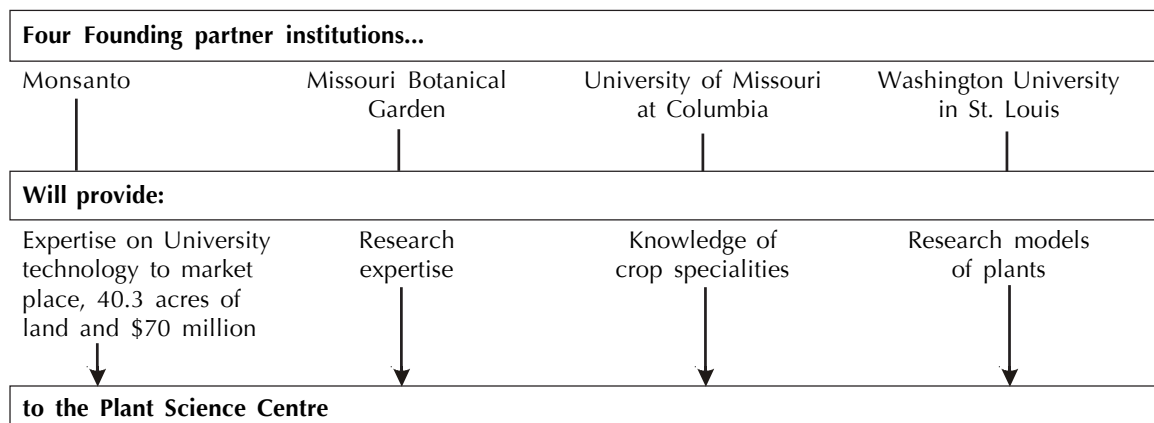
The termination of the Monsanto Grameen venture is the result of the efforts of environmental NGOs around the world, which voiced their opposition against this partnership. The calling off of such a project is a positive step, not only for Grameen, but for Third World farmers too. It proves that concerted citizen efforts can arrest the growth of Monsanto's global empire, and can thus act as a check on the imperialistic trend of Transnational corporations taking control over our food supply

The 'Corporatisation' of Agriculture

Monsanto-the Microsoft of Agriculture?

A new plant science centre, designed to be established in St. Louis, the location of Monsanto's headquarters, is slated to turn into the agricultural equivalent of Silicon Valley. The centre, the largest of its kind is expected to open in 2000. This project is an example of the new trend to gain corporate and monopoly control over food resources. This is a parallel example of the Green Revolution launched by the CGIAR (Consultative Group on International Agricultural Research), which though claimed to increase food supply, actually succeeded in wiping out thousands of native and diverse species by promoting monocultures, and thus increasing food insecurity in the Third World.

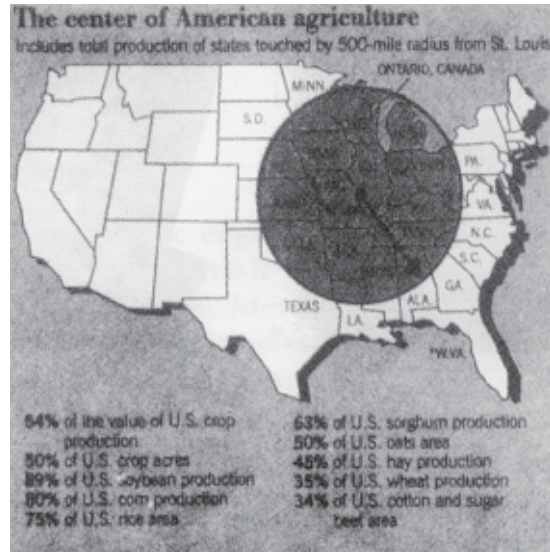
The new centre at St. Louis that grew out of a discussion between Monsanto, the Missouri Botanical Garden, Washington University and the University of Missouri at Columbia, is indicative of the new nexus between private companies, universities and nature reserves. The apparent goal of the centre is to "improve food nutrition and crop productivity." Of course, with Monsanto contributing more than \$70 million, genetic engineering will be the primary focus of the centre. The strategic location of the centre at St. Louis, which lies in the midst of the nation's corn and soybean belt, gives these agencies a natural monopoly over the food supply of the country. The Missouri Botanical Garden houses more than 25,000 plant samples which would be freely used for research purposes. This venture thus has in it the potential for becoming a 'biopiracy' gateway, with corporations using Third World biodiversity to promote their own products.



Source: St. Louis Post Dispatch, July 15, 1998

The chart below illustrates the strategic location of the new plant centre in the heart of the American agricultural system.

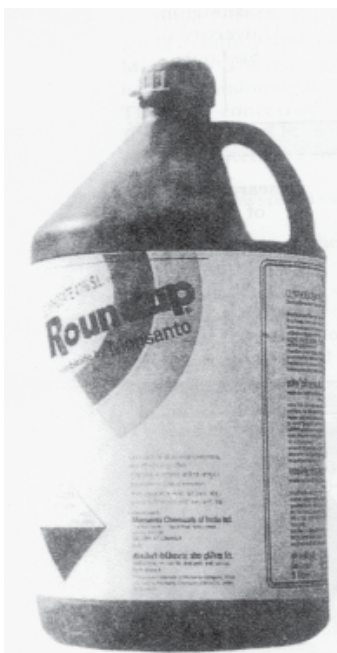
The tie up between Monsanto and the Indian Institute of Science at Bangalore is also an example of the corporate trend to establish links with research institutions with the obvious goal of using their resources for the purposes of commercialisation and profit maximisation. These partnerships are nothing less than sanctioned biopiracy ventures which extract traditional knowledge from developing nations without even acknowledging the contribution of indigenous local communities.



Roundup... rounding up biodiversity”

Monsanto and the Suppression of Freedom

Monsanto doesn't seem to think that it has enough crimes linked to its name which are sufficient to taint its image. So it is adding a few more human rights violations to its infamous list of atrocities against people. This time it is against the freedom of speech and expression. Monsanto's lawyers temporarily succeeded in Killing a new book, "Against the Grain", that addresses the perils of the new genetic technologies in agriculture, a market sector that Monsanto is seeking to dominate economically. The publisher of the book received a threatening letter from Monsanto saying that the book was "defamatory and potentially libellous" against its herbicide Roundup.



A thoroughly researched story on the dangers of rBGH which highlighted a series of Monsanto misdeeds, was squashed three days before it was to be aired on Fox TV. The television station received two tersely worded letters ultimately warning it of the "dire consequences" for Fox if the story was aired. The reporters Wilson and Aloe, however filed suit in federal court, and ironically, Monsanto's legal behaviour, coupled with the unrelenting efforts of the reporters, has resulted in enormous coverage for a story Monsanto never wanted the public to see or hear anything about.

Another story demonstrates how Monsanto is using force to quash the freedom of expression. Five women who are members of the Genetix Snowball campaign, were arrested by Monsanto for allegedly pulling up genetically engineered crops on a Monsanto 'test field site' at Oxfordshire, England on July 4, 1998. Melanie Jarman, one of the five women said, "This is a David and Goliath situation. Monsanto's bullying tactics are being used to distract attention from their flawed science."

These cases are just some of the many atrocities being committed by Monsanto against citizens globally. A company that advertises chemicals as safe, herbicides as natural, and genetic engineering as sustainable, also violates the rights and freedom of the people.

Monsanto's Patented Indian Wheat Variety

Monsanto's patent (EP 0445929 B1) claims to have "invented" wheat plants derived from a traditional Indian variety, and products made from the soft milling traits that the traditional Indian wheat provides.

In reply to a Parliamentary Question on the Monsanto wheat Biopiracy, the Minister of Agriculture has replied, (starred question no. 8 dated 21st July 2003), "M/s Plant Breeding International, a Unilever company which was acquired by Monsanto in 1998 has obtained a patent for a new variety of wheat designed for use in Europe. This variety incorporates some characteristics of the Nap Hal land race of wheat from India. The Nap Hal land race is not covered by the European patent and continues to be available to Indian farmers and researchers".

Even though plants are not an invention the first statement in Monsanto's patent states "This invention relates to plants and to products derived there from". The plants claimed as inventions in Monsanto's patent are essentially derived varieties of traditional Indian wheat referred to in the patent as "Nap Hal" available as accession No. 1362 from the AERC Institute of Plant Science Research, Norwich, U.K. There is no traditional Indian wheat called Nap Hal. In Hindi the word would mean that which gives no fruit. Breeders gave the wheat varieties names in accordance with the breeding centers where they worked. "Nap Hal" is evidently a distortion of Niphad. If the British could turn Hindus into "Gentoos" and Mumbai into "Bombay", Niphad could easily be distorted to Nap Hal. Niphad is a place in Maharashtra, which has a crop-breeding centre. Varieties selected and bred at Pusa were called Pusa-4, Pusa-6 etc. Varieties were named New Pusa (NP) when the agriculture station shifted from Pusa (in Bihar)

to IARI Delhi. Those at Niphad had the nomenclature Niphad. P-4 / NP-4, Niphad-4 is an Indian variety which is a selection from the local "mundia" found in the U.P. hills (now the Uttaranchal state), Gujarat and the Deccan.

With Greenpeace, Research Foundation for Science, Technology and Ecology are preparing a challenge against Monsanto's biopiracy of Indian wheat. And with farmers groups in India, Navdanya, a programme under RFSTE, is working to conserve, rejuvenate and grow native wheat varieties which were displaced and marginalized by the Green Revolution, even though in terms of nutrition per acre and productivity with respect to water, they are superior to the industrial varieties which depend on intensive inputs of chemicals and water.

**ALERT! Monsanto's own Press Release Indicates how
the Company Cracks Down on Seed Savers**

Below is a copy of a Monsanto press release, sent to agricultural extension agents and other state officials in the U.S., outlining the company's efforts to crack down on growers who allegedly violate the terms of its contracts.

The document is below reproduced in full. The details speak for themselves, and the statement's tone speaks volumes about Monsanto's long-range plans to make seed saving a crime.

Note that the abbreviation "Ill." refers to the state of Illinois, "Ky." is Kentucky.

Brian Tokar, Institute for Social Ecology, Plainfield, Vermont, USA and
The Edmonds Institute, Edmonds, Washington, USA

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Release Immediately

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MONSANTO RELEASES SEED PIRACY CASE SETTLEMENT DETAILS

ST. LOUIS (September 29) - In response to numerous requests from farmers wanting to know details regarding those offenders caught illegally saving and replanting seed containing patented technology, Monsanto Company today announced the specifics of one of its seed piracy case settlements.

Following a recent seed piracy investigation, David Chaney of Reed, Ky., admitted to illegally saving and replanting Roundup Ready® soybeans. Chaney also acknowledged that in return for other goods, he illegally traded the pirated seed with neighbors and an area seed cleaner for the purpose of replanting. All of those involved were implicated when Monsanto made the discovery.

Chaney's settlement agreement terms include a \$35,000 royalty payment as well as full documentation confirming the disposal of his unlawful soybean crop. Chaney, as well as the others involved, will make available all of their soybean production records, including Farm Service Agency/ASCS records, for Monsanto's inspection over the next five years. All of those involved also will

provide full access to all of their property, both owned and leased, for inspections, collection and testing of soybean plants and seed for the next five years.

Farmers in other states who unlawfully saved and replanted Monsanto's patented seed also have discovered the company's stringent policy on seed piracy. Other examples of monetary royalty terms include:

- * A McCracken County, Ky., grower will pay \$25,000 for illegally pirating seed.
- * A Ringgold County, Iowa, farmer paid a \$16,000 royalty for his unlawful actions.
- * A father and son from Edwards County, Ill., settled with the company for \$15,000.
- * An Ill. farmer from Christian County, will pay \$10,000 for his illegal actions.

Although royalty terms vary by case, all of these growers will undergo on-site farm and record inspections for at least five years. Other actions taken in 1998 include crop destruction and confiscation of seed. In each of these cases, the royalty payment far exceeded any cost savings the farmer could have gained from saving and replanting pirated seed.

Backed by U.S. patent law, Monsanto is vigorously pursuing growers who pirate any brand or variety of its genetically enhanced seed, such as Roundup Ready soybeans and cotton and Bollgard® cotton. The company has hired full-time investigators to follow up on all seed piracy leads it receives. To date, Monsanto has more than 475 seed piracy cases nationwide, generated from over 1,800 leads. Currently, more than 250 of these cases are under investigation in states including Alabama, Arkansas, Florida, Iowa, Illinois, Indiana, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Missouri, Mississippi, North Carolina, Nebraska, Ohio, Oklahoma, South Carolina, South Dakota, Tennessee and Texas.

Scott Baucum, Monsanto's intellectual property protection manager, says the vast majority of growers are honest businesspeople who do not pirate patented biotech seed. "We are committed to maintaining a level playing field for all growers," he says. Baucum also emphasizes the fact that seed piracy is illegal even if a farmer did not sign an order/invoice statement for the seed at the time of purchase. "For example, in David Chaney's case neither of these items was signed, but Chaney's actions were unlawful nonetheless."

Baucum says that when farmers illegally pirate patented biotech seed, everyone loses. "Monsanto invests many years and millions of dollars in biotechnology research to bring growers new technologies sooner rather than later," he says. "When growers save and replant patented seed, there is less incentive for companies to invest in future technologies that will ultimately benefit farmers." These technologies include seed that produce higher-yielding crops, drought-tolerant crops, crops that are protected against corn rootworm damage, cyst-nematode protected soybeans and crops with improved high value components, such as modified oil or bran.

Growers can talk with their ag chem retailer, seed dealer or Monsanto local market manager for additional information regarding seed piracy. Or they can call Monsanto directly by phoning 1-800-523-2333 in the South or 1-800-ROUNDUP in all other areas.

Roundup Ready® and Bollgard® are registered trademarks of Monsanto Company.

This material was originally distributed by Brian Tokar who teaches at the Institute for Social Ecology, at Goddard College in Vermont. Brian, a well-known author and critic, is also a member of the board of directors of the Edmonds Institute.

Monsanto barred from selling seeds in Bihar

By Imran Khan, Indo-Asian News Service

Patna, April 5, 2003 (IANS): Monsanto India Ltd., a subsidiary of the US multinational, has been barred from selling seeds in Bihar for allegedly marketing substandard products. The action came after farmers complained that Monsanto's Cargill hybrid 900M maize seeds were substandard or contaminated as they failed to germinate and much of the winter crop failed, Agriculture Minister Shivshankar Yadav said.

Monsanto is believed to have sold 700 tonnes of seeds for the winter crop, promising farmers yields of 80 to 85 quintals per acre. The actual yield was not even 10 percent of this, according to figures available with the government.

Bihar has 180,000 acres under maize. Monsanto seeds were planted over 140,000 hectares.

The company has been asked to explain its conduct. Experts from the Rajendra Agriculture University (RAU) would study its reply before the government decides on cancelling the company's licence to operate in the state, Yadav added.

Monsanto officials contend the poor yields were due to the unexpected cold weather earlier this year that had affected all hybrids across much of Bihar as well as nearby regions.

They pointed out that seed trials during the summer crop of 1996, 1997 and 1998 had produced adequate yields, after which they had been recommended to the central seed committee for notification in 1999.

Sources in the Bihar government said it was under tremendous pressure to cancel Monsanto's licence because thousands of farmers were demanding compensation after being reduced to penury following the failure of the winter crop.

While the loss has not been quantified, B.N. Jha, a specialist with the Agriculture Technology Management Agency, said it would run into millions of rupees.

"Farmers sowed Cargill seeds over hundreds of acres in Muzaffarpur district but the low output has devastated us. We had not faced such a problem earlier," said an upset Aawadesh Singh, a farmer of Meenapur village in the district.

His tale is similar to that of hundreds of farmers in over a dozen districts of north Bihar including Samastipur, Darbhanga, Madhubani and West and East Champaran.

Monsanto has said it would send its teams to the affected districts to study the situation on the ground.

— Indo-Asian News Service

The Revolving Door

US GOVT. – MONSANTO COLLUSION

(excerpts from story Dec. 27, 1998 by Bill Lambrecht Post-Dispatch Washington Bureau WASHINGTON)

A \$7.5 billion company with 25,000 employees needs to be well-connected, and Monsanto works to keep it that way. The company plies political parties equally and recruits people with deep ties in Washington.

By virtue of a friendly relationship between Monsanto chief operating officer Robert B. Shapiro and Clinton, Monsanto is identified in Washington as “a Democratic company.” Monsanto and its employees spread the political contributions. In the last two years, donations to Democrats totaled about \$100,000; Republicans received \$140,000. The company invests much more in bringing aboard influential people. Among them:

- Monsanto board member Mickey Kantor is a former U.S. trade representative and chairman of Clinton’s 1992 presidential campaign.
- Marcia Hale, Monsanto’s international regulatory director, was a top Clinton assistant.
- Linda Fisher, Monsanto’s vice president for federal government affairs, mapped pesticide policy in the Bush administration EPA.
- Michael R. Taylor, former deputy FDA commissioner, was hired recently to look at long-range matters.
- Jack Watson, who was chief of staff in Jimmy Carter’s presidency, is a Monsanto staff lawyer in Washington.

The U.S. Department of Agriculture operates in the dual role as regulator and ardent booster of biotechnology. Agriculture Secretary Dan Glickman said that pressing foreign leaders on these matters “is at the top of my agenda.” Clinton, Gore, and Secretary of State Albright have applied significant pressure on foreign leaders to accept GMO food without labeling.

Conclusion

Monsanto has the biggest stake in pushing genetic engineering in agriculture. Over the last few years Monsanto has positioned itself as the leader of the biotechnology industry. Genetic engineering has become Monsanto’s Trojan Horse Strategy for maintaining its chemical sales in an era in which its chemicals are questioned and its patents are running out.

The bullying tactics of Monsanto, its drastic distortions, and the strategic way in which it has gained control over agriculture around the world, are proof of its intention to totally control food and agriculture world wide. It wants the power to dictate and dominate agricultural systems everywhere. It wants Roundup Ready crops to be grown, and it wants to obliterate traditional breeding and agricultural diversity. It wants to maximise profits, even if it is at the expense of the environment, health, livelihood and welfare of humanity.

Will we allow a corporation that has ‘repeatedly poisoned the planet and harmed human, animal and ecological health through the marketing and sale of its many toxic products’, to grow and carry out its agenda of monopolising the world? Monsanto’s

empire needs to be contained for the sake of the earth and its biodiversity, small scale farmers in the Third World, and consumers everywhere. Else the world will become one huge Monsanto operated, pesticide infested, genetically engineered, monoculture farm, far removed from anything even obscurely “natural” and healthy. Far from standing for “food, health and hope” Monsanto is basically a company that promotes “fraud, stealth and hype.”

“Dependence does not foster freedom. On the contrary, dependence fosters a loss of freedom. Dependence does not increase personal power, it diminishes it. When you are dependent, you relinquish control. History is full of examples of peoples and cultures who lost fundamental freedoms, who were controlled by their need for food. This shouldn’t happen to Second and Third World farmers.”

(Geri Guidetti, The Ark Institute, 1998).

¹ Bt Cotton Will Not Spin Punjab’s Yarn; The Statesman, India, 15 April 2003

² Bt. cotton proves a failure in Andhra Pradesh; NDTV.COM, 3rd March 2003

³ Letter from Joint Director Agriculture, Mehboobnagar to the Commissioner & Director of Agriculture, Andhra Pradesh; Letter No. E3/BT/AO.T/2002 dated 2.01.2003

⁴ Bt. cotton an official write off; The Hindu, 26/01/2003; <http://www.thehindu.com/2003/01/26/stories/2003012601690500.htm>

⁵ Government lies to the Nation on Bt cotton performance; www.greenpeaceindia.org

Bt. Cotton in India: A History of Illegalities and Irregularities

Monsanto is establishing its empire in the agricultural sector in India at the cost of democracy and ecology.

On 10th March 1995, the Maharashtra Hybrid Seeds Company (Mahyco), a collaborator with Monsanto, imported 100 grams of the developed cottonseed with Bt. (*Bacillus thuringiensis*) gene after obtaining permission from Review Committee of Genetic Manipulation (RCGM) under the Department of Biotechnology, Ministry of Science and Technology, Government of India. As per the "Rules for the Manufacture, Use, Import, Export and Storage of hazardous Microorganisms Genetically Engineered Organisms or Cells, 1989 (known as GMO Rules, 1989)" framed under the Environment (Protection) Act, 1986, the permission to import genetically engineered substance (seeds in the present case) can be granted only by the Genetic Engineering Approval Committee (GEAC) under the Ministry of Environment and Forests, Government of India. However no such permission was granted by the GEAC. Therefore, without any clearance from authorised agency, Bt. gene was imported into India, and hence it was illegal. According to 1989 Rules RCGM has no power to grant any permission or approval to use, import, produce or use such genetic material in trials (whether contained or open).

In 1998 the large-scale, multicentric, open field trials by Monsanto-Mahyco at 40 locations and in 40 acres spread over the 9 states was started, with the intention of commercialising it in India, without the permission from the authorised agency, i.e. GEAC even though it is the sole agency to grant permission for large scale open field trials of GMO's under the 1989 Rules.

The permission for the large-scale open field trials of genetically modified Bt. cotton was given by the Advisor, Review Committee of Genetic Manipulation (RCGM) to Maharashtra Hybrid Seeds Company (Mahyco) to carry out multicentric trials initially at 25 locations by permission dated 27th July 98 and thereafter 15 locations by permission dated 5th August 98 making 40 locations in 9 states.

The letter of intent issued by the Department of Biotechnology did not refer to any ecological assessment of the GMO in the agro-ecosystem under Indian conditions or precautions and safeguards, which are mandatory as per the guidelines for biosafety regulations. RCGM was not empowered to issue any such letter; it could, if at all, have been by the Genetic Engineering Approval Committee in Ministry of Environment and Forests only.

The field trials of *Bt* cotton on 40 locations in 9 states are totally unscientific and illegal. The permission granted to Mahyco-Monsanto for the open field trials is in category of organisms with potential ecological risks. Environmental risks under this category need to be assessed and regulated in accordance with the GMO Rules of 1989.

Monsanto has truly used MAHYCO as a vehicle to reach the remotest part of the country. It was the individual contact and rapport which Mahyco and the farmer of

those villages had for years was exploited by Monsanto to do its *Bt* cotton open field trials. For the field trials, Mahyco approached individual farmers based on prior acquaintances. The field trails of genetically engineered *Bt* “Bollgard” cottonseeds were conducted at those farmers fields who had conducted field trials of Mahyco seeds earlier. In some of the trial sites, Mahyco’s own seed dealers were selected to test *Bt* on their fields and for recommendation to other farmers through these dealers. Mahyco agreed to meet the expenditures incurred on the cultivation of the *Bt* crop on their fields. In order to attract other farmers, Mahyco-Monsanto organised *khestra utsav* to show the crop performance to other villagers from neighboring villages. However, during shows organised by the Monsanto-Mahyco, the nature and cost of technology was not revealed to the farmers undertaking the trials.

The permission for carrying out multicentric field trials was granted without assessing ecological impact on biodiversity, protection of environment, danger to the agriculture and health hazards to the human beings and animals. The 1998 permission was not the only violation of the provisions of the GMO Rules, but even the Guidelines for GMOs published in August 1998 by the Department of Biotechnology and framed under the GMO Rules goes contrary to the GMO Rules besides being totally inadequate to deal with the present state of genetic engineering requiring stringent measures and precautions to be taken in such trials. The permission has been further vitiated because the state governments of the concerned 9 states where open field trials were conducted were not consulted before granting such permission when “agriculture” is a state subject and such experimentation has direct impact on the agriculture of a particular state. Mr. Byre Gowda, Agriculture Minister of Karnataka stated that the centre had not consulted the state before allowing the field trials in Maladahalli (Sindhane Taluk, Raichur) Ramkhar (Gagarilsommanahalli Taluk, Bellary) and Adur (Hanagal Taluk, Kaveri) in the fields of Mr. Sabassa J. Hunsole, Mr. V.V. Nanjundappa, Mr. Mahalingappa and Mr. Shankarikoppa. Public participation in decisions about whether trials can be carried out has not even been considered, although all environmentally destructive activity is supposed to be notified and cleared only after a public hearing.

Moreover, the two important committees viz. State Biotechnology Coordination Committee (SBCC) and the District Level Committee (DLC) were not informed in advance before the grant of permission as these Committee are concerned with biosafety of such genetically engineered trials in the State as well as in a particular district.

Further, no post harvest management and safety was ensured in the fields of the farmers during the open field trials of the *Bt* cotton. Some of the farmers who conducted the field trials sold their genetically engineered *Bt*. cotton harvest by mixing it with normal cotton in the open markets. Not even that, the farmers of some of the states who had undertaken trials replanted their trial fields with crops like, wheat, turmeric, groundnut etc., which violates Para-9 on “Post harvest handling of the transgenic plants” of the Biosafety Guidelines, 1994. As per the biosafety guidelines, the fields on which GMO trials were conducted should be left fallow for at-least one year. Contrary

to this the company has not informed the farmers for not taking up any other crop cultivation in the trial plots. Neither any farmer was informed of the impacts of GMO on the surrounding ecosystems.

The Research Foundation for Science, Technology and Ecology (RFSTE) fact finding survey found out that contrary to the promise made by the Monsanto and Mahyco to the farmers that *Bt* cotton would help in reducing pesticide use by controlling bollworm, the farmers had no escape from the bollworm and the pesticides in the *Bt* cotton and therefore no monetary saving to them. Mr. Harpal Singh Barar, village Allika in Sirsa District, had made about 12-15 sprays of pesticides in the *Bt* cotton field. Similarly, in Mr. Surender Singh Hayer field in village Rajanwalli in District Ferozpur, more than 6 sprays of chemicals were made. In Mr. Lehri Singh's field in village Mayer in District Hissar, more than 3 sprays were made, in the Mahyco's field in Gurgoan about 3-5 sprays were made. This is also true in the southern states of India in the field of Mr. B.V. Nanjundappa field in the village Bannikall in District Bellary in Karnataka, where more than Rs. 6700/= were spent on pesticides till 15th December, 1998 in the *Bt* trial field.

The survey found out that the promise of increased yields of the *Bt* cotton was also a trap plan for the farmers. In Mr. Harpal Singh Barar and in Mr. Surender Singh Hayer's field the yield of the *Bt* crop was almost negligible. Contrary to the promise of a bumper yield of *Bt* cotton, Mr. Barar got only "5 kg" cotton from the trial field while Mr. Hayer was shy of disclosing the "negligible yield" from the trial field and said that yield was not the objective of the trial. However in Mr. Lehri Singh field in Hissar, the *Bt* cotton yield was about 7 mans (7 X 40kg = 280 kgs) in 3 canal (8 canals = 1 acre), which can be calculated as 17 mans (680 kg) per acre. While in comparison to the *Bt* cotton, the Desi cotton yield was about 22 mans (880 kg) per acre in his own field.

It was also found that Mahyco and Monsanto did not follow the required isolation distance and buffer zone during the multicentric trials. A totally inadequate design to prevent gene flow through pollination was followed and only a distance of 5 meters isolation as safeguard measure was prescribed under the directive to Mahyco by the RCGM. According to the seed laws of US pertaining to cotton to maintain genetic purity, a distance of 1920 ft. has to be maintained, this stipulation is further increased to 2640 ft. in hybrids and in the case of GMO's it is even higher i.e. above 3000 ft. The Ministry of Environment and Forests admitted that RCGM reduced the isolation distance to 5 mts. "although seed certification norms have established 30 mts."

A field study by the Research Foundation team also found that the date of the sowing of *Bt* cotton by individual farmers' show that the crop was sown before the permissions were obtained by Mahyco for open field trials which came only in late July and early August 1998. In north India the cotton is planted in the month of May-June and the farmers undertaking the *Bt* cotton trials planted their *Bt* seeds during that time hence it was a grave violation of the Biosafety norms and regulation.

The trial were also violative of the Guidelines because the transgenic plants were not “destroyed by burning all the vegetative parts and left over seeds” as prescribed in the May 1994 Guidelines under section 9 “Post Harvest Handling of the Transgenic Plants”.

The field trials thus became an underhand means for seed multiplication and genetic pollution, which has now become a big problem in the state of Gujarat where the contaminated Bt. seed have now spread over to large areas. The illegal planting of Bt cotton in Gujarat is the result of illegal trials carried out by Monsanto and Mahyco over the past years which have totally violated Biosafety norms and put farmers and the environment at risks.

It was because of these reasons and gross violations of laws and Rules of GMOs as well as the risks of genetic pollution and genetic contamination that the Research Foundation for Science, Technology and Ecology (RFSTE) filed a case against the Monsanto and MAHYCO in the Supreme Court of India in 1999.

First Clearances by GEAC despite Supreme Court Case

The GEAC which was totally absent in the approvals of first two open field trials of first two years (1998-1999 and 1999-2000) suddenly become active and gave clearances to Monsanto-Mahyco in July 2000 to undertake the open field trials of Bt. cotton on 85 hectares as well as simultaneously allowed seed production on 150 hectares, implying the intention to expand transgenic cotton cultivation without waiting for social, ecological and economic assessments.

The official note circulated by MoEF states that “M/s. Maharashtra Hybrid Seed Company (Mahyco) has been permitted to undertake field trials and generate environmental safety data on transgenic cotton in various agro-climatic regions of the country”. This proclaimed objective was totally misleading. Firstly because, it hides the role of Monsanto which has the patent on the transgenic Bollgard Cotton and with whom MAHYCO has a joint venture i.e. Monsanto-MAHYCO Biotech (India) Pvt. Ltd.

In any case corporations promoting Genetic Engineering (GE) cannot be the source for biosafety data. Biosafety data has to be generated by ecologists and other independent experts. Depending on Monsanto-MAHYCO for environmental safety data is like depending on the chemical industry for data on chemical pollution and the auto industry for CO₂ pollution. Pollution monitoring and assessment agencies must be independent of the commercial interests that gain from an activity that generate pollution. In the case of genetic pollution, which as the note says is a legitimate public concern, similar independence needs to be maintained for environmental safety data.

Given the public concern related to Genetic Engineering (GE), the absence of public participation in the Monitoring-cum Evaluation Committee is another major cause of concern. The study by the RFSTE on the first two years of field trials shown that the claims related to transgenic cotton in terms of yields or reduction in pesticide use was fabricated to speed up commercialisation and had no scientific basis.

This is a democratic imperative and fundamental to the right to know. The government was silent on the results of the first two years of open field trials and was reluctant to open monitoring and evaluation for public participation.

Illegal Spread from Illegal Bt. Cotton Trials

Bt. cotton controversy in Gujarat once again highlighted the lack of biosafety infrastructure in India. In October 2001, more than 10,000 hectares were found planted with "Navbharat 151" in Gujarat, which MAHYCO and later GEAC tested and confirmed to be transgenic Bt. GEAC whose permission is required for commercial growing of GM crops had not approved cultivation of any such crop. So the disclosure made a total mockery of Indian regulations regarding import and use of genetically modified organisms (GMOs).

The environment ministry learnt that cotton farmers of Gujarat had purchased the hybrid seeds from an Ahmedabad-based seed company "Navbharat Seeds Pvt. Ltd." that has been marketing its cotton variety 'Navbharat 151' as a variety resistant to "bollworms".

The GEAC ordered to uproot the standing crop of "Navbharat 151" and destroy it by burning and also to destroy the seed production plots. But this order was later changed to procure the cotton which had already reached the market, destroy the seeds and store away the lint; State Government to procure the cotton from the remaining standing crop of "Navbharat 151" in the farmers fields and also from farmers storage places, and procured cotton would be ginned for separation of lint and seed, the seeds would be destroyed and separated seeds would be kept under safe custody till further orders from GEAC; as well as state government would ensure uprooting and complete destruction of the crop residue by uprooting and burning.

However, Navbharat Seeds Pvt. Ltd. challenged the GEAC order in the Delhi High Court on 24th October 2001 in the case Navbharat Seeds Pvt. Ltd. Vs Union of India & others.

The company basically argued that it had not carried out genetic engineering methods to produce seeds and that it is a very small company and has no such facility of genetic engineering research. And that it has basically produced a hybrid from cotton plants collected from Maharashtra, selected superior hybrids and then registered the hybrid "Navbharat 151" with the Department of Agriculture, Government of Gujarat, and marketed it in last two years. In the year 1999-2000, 1371 kilograms of "Navbharat 151" seeds were produced while in 2000-2001 it was 5817.50 kgs. In the year 2000, the 2437 packets of "Navbharat 151" were sold while in 2001, 11820 packets of "Navbharat 151" were sold.

It is thus evident that the source of the Bt. in the "Navbharat 151" hybrid has come from either the open field trials undertaken by Monsanto and Mahyco or by cross-pollination from their trials with other cotton varieties. In either case Monsanto and Mahyco are the source of the genetic pollution which has now entered the commercial seed supply through hybridization either intentional or natural.

The large-scale illegal commercialization of Bt. cotton in Gujarat was therefore clearly linked to Monsanto-MAHYCO trials.

The GEAC in its submission to the High Court of Delhi in the Navbharat Seeds Pvt. Ltd vs Union of India, has admitted that the Bt. cotton poses major risks to the soil microorganisms. It says,

“12(i) The crop which is standing may pass to the soil that modified genes which it contains. The effect on soil microorganisms can not be estimated and may cause an irreversible change in the environment structure of the soil. It is a standard practice to uproot crops which pose such a threat. The destruction by burning is to ensure safety to environment and human health and to obviate any possibility of cross-pollination.

(ii) The destruction of the cotton produce as well as seeds harvested from this plant is also equally necessary. The cotton which has been produced is genetically modified cotton, the effect of which i.e. allergenicity and other factors on mammals are not tested. The precautionary principles would require that no product, the effect of which is unknown be put into the market stream. This cotton which in appearance is no different from any other cotton will intermingle with ordinary cotton and it will become impossible to contain its adverse affect. The only remedy is to destroy the cotton as well as the seeds produced and harvested in this manner.

(iii) Since the farmers are being put to a loss, the further process to determine the compensation payable to farmers, who have unwittingly used this product has to be determined and undertaken.

13. I would respectfully submit that every day of delay in this matter poses a threat to the environment.”

Commercial Clearance to First Genetically Engineered Crop in India

However with a few months of the “Navbharat-151” where the GEAC ordered the uprooting and burning of Bt cotton in Gujarat in November 2001 and on 26th March 2002 same GEAC cleared the controversial genetically engineered Bt cottonseeds for commercial planting in India.

The conditional clearance dated 26.03.2002 for commercial release of the transgenic Bt. cotton seeds given by the GEAC, was based upon information obtained from previous tests and trials (open field trials) which was cleared by an authority (RCGM) which did not have the jurisdiction to grant approval for first two open field trials. Moreover the permission granted to Monsanto for the concerned open field trials were in grave violation of the existing biosafety rules.

Therefore the conditional clearance dated 26.03.2002 for commercial release of the transgenic seeds is also illegal, as the decision though given by the GEAC was based upon tests and trials which was cleared by an authority which did not have the jurisdiction.

The commercial clearance to the Bt cotton was given in spite of the fact that:

- a. a Supreme Court case challenging the 1998 field trials is ongoing;
- b. the GEAC itself, after finding 11,000 ha. under cultivation of Navbharat 151 which contained Bt genes, had recommended the destruction through burning of the standing cotton crop on the ground of its potential to “*cause an irreversible change in the environment structure of the soil*”, danger to “*environment and human health and to obviate any possibility of cross pollination*” as well as the fact that “*the precautionary principles would require that no product, the effect of which is unknown be put into the market stream.*”
- c. Specifically, on the issue of commercialization, the GEAC had stated:

“This cotton which in appearance is no different from any other cotton will intermingle with ordinary cotton and it will become impossible to contain its adverse affect. The only remedy is to destroy the cotton as well as the seeds produced and harvested in this manner.”

It appears that the GEAC suddenly threw the precautionary principle to the wind, and that too, with inadequate testing and trials in the assessment of risks and benefits. It is well known that environmental impacts of the GE technology cannot be assessed overnight. The potential risks of genetic engineering are also well-documented and known to GEAC.

The hasty clearance to the Bt cotton needs to analyzed in light of the four major issues related to the ecological and socio-economic impact of Bt. cotton trials conducted in 2000-2001 that are relevant to whether or not the trials were complete and adequate as grounds for commercialization. These issues were:

1. *Risks of genetic pollution and genetic contamination through cross-pollination and hybridisation.*

In the trail data on the pollen flow studies there is a variation of 2m to 15m, leading to possibility of a 7500% margin of variation, a margin too high for sound science. As stated earlier, the GEAC itself had, in its decision to destroy the Navbharat 151 crop in Gujarat, noted the possibility of cross-pollination.

The permission to commercialise disregards the growing evidence worldwide of the potential of genetic contamination through cross-pollination. There is no coherence among the monitoring agencies on the maximum distance to which a Bt. pollen can fly. According to DBT, the gene flow in Bt cotton is two metres while Mahyco-Monsanto says that it is 15 metres. However US Department of Agriculture says that it is three miles.

2. *Impact of the Bt. toxin on non-target beneficial species.*

The trial data shows that the trials have been carried out with zero populations of beneficial species in both Bt. and non-Bt. varieties. Impact on non-existent populations of beneficial insects is not proof on “no significant difference” in impact but evidence of “no significant study” on impact. Moreover, Bt cotton is designed to be resistant

only to cotton bollworm (*Helicoverpa armigera*) while the cotton crop in India is faced with a complexity of pest attacks. Pests such as whitefly, jassids, aphids and pink bollworm have emerged as major pests in the last few years with crop losses being as high as those caused by the bollworm. Consequences can severely threaten to jeopardise other ecologically sound methods of pest control and eventually prove devastating to the farmers. Farmers have been forced to apply all kinds of pesticide cocktails to control pest infestation. As seen in Andhra Pradesh, when these costly chemicals fail, thousands of farmers are forced to commit suicides. Genetically engineered Bt. is more like a biological trap, more potent than the toxin it produces that kills the American bollworm. The 'chemical treadmill' is now being replaced with a more dangerous 'biological treadmill'.

3. Emerging of resistance in target species viz., boll worm

No studies have been carried out on insect resistance to Bt. Experience with Bt. crops from around the world shows a quick buildup of resistance, which has become a main concern in the US and Canada, and has not been detected even in China. Farmers have to spray pesticide to control third and fourth generation of American bollworm insects. In Australia too, farmers have now been advised to go in for more sprays because of a drop in expression levels. With the insect increasingly developing immunity against the Bt. toxin in the plant, GE seed companies are now suggesting farmers to adopt "refuge", whereby at least 50% of the farmers' field has to be planted with non-Bt cotton so that bollworm do not build up resistance to Bt. In spite of all the accumulated evidence, the GEAC permission has stipulated that a mere 20% of the field be left as refuge.

4. Socio-economic comparison with other alternatives to synthetic pesticides for controlling pests like the boll worm.

It is falsely claimed that the trials indicated that both yield increase and cost savings have been the major benefits of Bt. cotton to the farmers. This is misleading for 2 reasons:

- (i) In data reported that the yield of the non-Bt. LNH 144 (open pollinated variety) is higher than the Mech-184 Bt. variety;
- (ii) Cost savings need to be compared not to chemical agriculture but to organic agriculture. Savings are as high as Rs. 4350/acre and costs can be reduced upto 80%, compared to the 50% cited in the case of Bt.

The impact of Genetically Engineered cotton goes much beyond the immediate environment to potentially affect human and animal health because in several Indian states cottonseed oil is the primary edible oil and the seed cake is used for animal feed.

The GEAC was apparently satisfied that Mahyco provides accurate data to ICAR and other scientific bodies who are then supposed to assess the safety and performance of Bt cotton. However, this assumption has no basis in fact. Independent research on the impact of genetic engineering are not generally encouraged, and

where they are done, they have shown that genetically engineered crops are not only not “substantially equivalent” to non-genetic engineered crops, they also can prove to be potential health hazards. For example, Novartis tried its best to silence Dr. Arpad Putzhai, whose independent research on the impact of a variety of genetically engineered potato showed early anatomical, histological and physiological changes in mice, particularly related to the respiratory, digestive and immunological systems. The British Parliament had to intervene before Dr. Putzhai was allowed to make his data public.

In such a situation prudence demanded that environmental and health safety of technologies be thoroughly tested before allowing commercialization. The situation also demanded that there be adequate biosafety capacity in the country, as well the issue of liability of commercial producers of GE seed be fully defined. The Gujarat case also showed that biosafety capacity is totally absent at State level and the issue of liability is totally open ended. The capacity and functions of the regulatory systems at local, state and central levels have to be strengthened before any commercial release should have been allowed.

Other prerequisites to commercialization of any genetically engineered seed include:

- Labeling for genetic engineering in both seed, agriculture process – both commodities and food, including processed products.
- Strict monitoring systems at the seed production level to ensure no contamination occurs, and at the farm level for ensuring refuge criteria are adhered to.
- Strict monitoring of the socio-economic impact on farmers.
- Strict monitoring of environmental, ecological and health impacts on soil organisms, humans, animals, insects, birds, and other pollinators and beneficial species, as well as on related varieties, whether domesticated or wild, by authorized, public sector, independent scientific body for a period that is of long enough duration to ensure that genuineness of data and results.

Granting permission for commercialization in the current contexts, where none of these monitoring systems exist, amounts to GEAC’s undermining its own mandate to ensure biosafety.

In spite of the lack of any biosafety capacity, and the lack of any system of ensuring liability of commercial producers of GE, the GEAC has not just gone ahead with allowing the commercial production of Bt Cotton, but has also announced that commercialization of various other Bt crops, starting with Bt. mustard will be allowed shortly. This is clearly an abdication of GEAC’s responsibility to the public, whose health and environmental safety is its mandate, and should, therefore, be its primary concern. By caving in to the pressure tactics of commercial interests, GEAC has shown its total disregard for the farmers and consumers of India.

After the commercial clearance, Monsanto-Mahyco sold near about 105,000 packets of the three varieties of Bt. cotton i.e. MECH 12 Bt, MECH 162 Bt and MECH 184 Bt. in 2002.

Each packet was meant for sowing in one acre and the total weight of seeds was 570 grams (450 grams Bt. and 120 grams of non-Bt of the same variety). All three varieties are hybrid cotton and are being sold under the Monsanto's brand name called BOLLGARD. The seeds are treated with Imidacloprid (Goucha) and Thiram poison for sucking pests. The cost of one packet of 570 grams of hybrid seeds of Bt. cotton is Rs. 1600/- while the cost of other non-Bt. hybrid is between Rs. 350 - 450 for 450 grams for one acre.

The commercial clearance to Bt. cotton was granted on grounds that it had been fully tested in Indian condition, that it does not require pesticide sprays and it gives higher yield and farmers have higher incomes. All the claims on the basis of which the clearance was granted have been proven false by the total failure of Bt. cotton in states where it was cleared for plating including Andhra Pradesh, Maharashtra and Madhya Pradesh.

Complete Failure of the First Commercialized Genetically Engineered Crop

On 25th April 2003 the Genetic Engineering Approval Committee (GEAC) under the Ministry of Environment and Forests (MoEF), Government of India, denied the commercial clearance to Monsanto's Bt. cotton for the northern Indian states. This vindicates the apprehensions of the Research Foundation for Science, Technology and Ecology (RFSTE) and others who have warned the government about the severe repercussions to the Indian farmers and their livelihood if further clearance to the Bt. cotton has been allowed in view of its large scale failure in first year of its commercial planting in approx. 40,000 hectares.

The GEAC denial to commercialize Bt cotton in the northern states comes after the massive failure of Bt cotton in the southern states of India. The GEAC, which, in spite of being aware of ecological hazards and GM corporations' false claims of reduced pesticide use and higher yields, had given permission to Monsanto-Mahyco to commercialise Bt. cotton in the southern states on 26th March 2002, had asked for a year's additional trials in the north. Though the official version about the Bt. trials by Indian Council of Agricultural Research Punjab (ICAR) as well Monsanto-Mahyco is not available, the independent studies by citizen group found that the Punjab farmers have rejected the first ever genetically modified commercial cotton hybrid seed, Bt Cotton, due to its poor harvest. Malwa, a cotton rich area, in southern Punjab is highly dependent on this cash crop, but successive failures have left farmers in the lurch. Though the Punjab Agriculture University was against the sowing of Bt Cotton seeds, several farmers smuggled Bt Cotton seeds from Gujarat hoping better results. The yield was, however, lower than claimed. The Daula village Sarpanch Mr. Darshan Singh said: "... We had to spray chemicals four to five times on Bt Cotton. The crops were attacked by various pests, specially the American Bollworm. The Bt Cotton yield was lower than that of the local varieties, which are more profitable."¹

Moreover, the Bt Cotton seeds are costlier. Farmers who sowed Bt Cotton got an yield of 250 kg a hectare while the local variety yielded almost double. Mr. Baljinder Singh,

research scientist with Monsanto India Ltd, said: "Our aim is to reduce the cultivation cost". But farmers are unconvinced.

The Research Foundation for Science, Technology and Ecology (RFSTE) conducted a study during October-November 2002 in the states of Maharashtra, Madhya Pradesh, Andhra Pradesh and Karnataka which showed that not only did Monsanto's cotton not protect the plants from the American Bollworm, but there was a increase of 250-300% in attacks by non-target pests like Jassids, aphids, white fly and thrips. In addition, the Bt plants became prey to fungal diseases like root rot disease or *fusarium*. The Bt. cotton varieties gave very low yields. Even the staple lengths of whatever little cotton was produced were so short that the cotton fetched a very low price in the cotton market.

The failure of Bt. cotton has prompted the Agricultural Minister of Andhra Pradesh, Mr. V. S. Rao, to state that "overall information is that the farmers have not experienced very positive and encouraging results" with Bt cotton. The state government also said that farmers are not getting the yields they were promised and the poor quality of the crop also fetches a lower price in the market².

Even the Joint Director of Agriculture, Mehboobnagar, Andhra Pradesh, in a letter³, on the performance of Bt cotton in Mahboobnagar District, to the Commissioner and Director of Agriculture of Andhra Pradesh, has recorded that Bt cotton failed in his district on the following counts:

1. Drying and falling of squares without boll formation,
2. Reduced boll formation,
3. Small sized bolls,
4. Very short staple length,
5. Very little resistance to boll worm, and requiring 2-3 sprays for control of boll worm,
6. Not resistant to dry spells,
7. Low yields (only 2 -3 quintals for MECH 162),
8. Low market value,
9. Cost-benefit ratio not on par with non-Bt cotton.

The Joint Director of Agriculture, Government of Andhra Pradesh, Mr. M. Laxman Rao, has stated regarding the experience of Andhra farmers with Bt cotton, "the seed did not have the impact as it was propagated. It has failed to show good results in the yield as well as in pest control." Other Divisional Assistant Directors of the department observed high pest incidence in the Bollgard seed than in other varieties. One of them commented, "Going by the hi-pitch propaganda, the Bt seed should have much resistance, but the ground reality is in contrary"⁴.

Though the government of Andhra Pradesh declared the Bt. cotton as failed and even decided to compensate the affected farmers, the Minister of Environment and Forests,

Mr. T. R. Balu gave an statement in the Parliament that the Bt. cotton had shown a 'satisfactory' performance. And this statement is based on the report of the GEAC members on their two days visit to a few Bt. farms in Andhra Pradesh. This tour of the GEAC members was guided by Monsanto and Mahyco.

The Greenpeace investigation, where the team visited the same farmers as the GEAC team, stated categorically that "the statement of the Minister of Environment and Forests, Mr. T. R. Balu in the Rajya Sabha on December 16, 2002 is a gross misrepresentation of farmers' experiences. The government has lied to the nation on Bt cotton performance.⁵

Greenpeace study also revealed the following:

- The expert team's visit was directed and managed by Mahyco-Monsanto;
- The number of farmers who were met represent a small sample size of those engaged in Bt cotton farming; farmers with the bad Bt cotton experiences were not met;
- The scope of the assessment was narrow and was not broad-based.

On the basis of the field trials by Monsanto and Mahyco, GEAC had, in its 32nd meeting dated 26.03.2002 given conditional clearance for three years from April 2002 to March 2005, for commercial release of three out of four of Mahyco's transgenic hybrids of the cotton. The GEAC has given conditional approval for commercial cultivation of Mech-12, Mech-162 and Mech-184 varieties of the transgenic hybrids of the cotton to Mahyco.

The GEAC's conditions for approval include the following:

- Mahyco will monitor annually the susceptibility of boll worms to Bt gene vis-à-vis baseline susceptibility data and submit data relating to resistance development if any to GEAC,
- monitoring of susceptibility of bollworms to the Bt gene will also be undertaken by an agency identified by the Ministry of Environment and Forests at applicants' cost,
- Mahyco will also continue to undertake studies on possible impacts on non-target insects and crops and report back to GEAC annually.

It is submitted that, in addition to the GEAC's own tacit acceptance of the incompleteness of the Monsanto-Mahyco Indian trials, by 2002 there was enough evidence from research by independent researchers, and actual experience of farmers worldwide to conclude that the Indian trials by Monsanto and Mahyco provided "inadequate information" and to "err on the side of caution and prevent activities that may cause serious or irreparable harm" to the environment, human health and farmers' income.

The independent study conducted by RFSTE in October-November 2002 in the states of Andhra Pradesh, Maharashtra, Madhya Pradesh and Karnataka found that:

- Monsanto-Mahyco have sold near about 105,000 packets of the three varieties of Bt. cotton, each packet cost at Rs. 1600/- and was meant for one acre and total weight of seeds was 570 grams (450 grams Bt. and 120 grams of non-Bt of the same hybrid variety) and these were sold under the Monsanto's brand name BOLLGARD,
- Bt. cotton is not resistant to bollworm, and requires higher pesticide use,
- Bt. cotton has been devastated by pest attacks. Pest occurrence on Bt. was higher than non-Bt. cotton. As the trail data had already indicated there was a 250-300% increase in non-target pests - jassids, aphids and thrips - for Bt. cotton in Maharashtra, Andhra Pradesh, Madhya Pradesh and Karnataka. What was shocking was the substantial attack of bollworm in all the states, particularly in Maharashtra and Andhra Pradesh.
- In Maharashtra, in the Boath village in Pandharkawada (Kelapur) tehsil in Yavatmal, Advocate Mr. Ram Krishnapathi has sprayed 2 times for Bollworm in 50 acres of Bt. cotton and 7 times for sucking pests. The cost for one spray for bollworm in one acre is about Rs. 700/- while the cost for one spray for sucking pest is approx. Rs. 250/- per acre.
- Mr. Raju Ratnakar Gandhewar of the same village has used 5 sprays for bollworm and 10 sprays for sucking pests.
- Mr. Sudhama at the farm of Mr. Purshotam Kushalrao Kakre at the Aloda village in Yawatmal district has sprayed seven times in Bollgard out of which 6 sprays were for controlling bollworm. Each spray cost him about Rs. 700/-.
- The Principal of the Anandwan Agriculture Collage, Prof. Palar Pawar has sprayed 5 times for pests and have released about 9000 Bracons to control pests in their one-acre Bt. cotton.
- Mr. Ankur Choudhury of Wani in Yawatmal has sprayed 7 times in Bt. cotton for the sucking pests and expected another 5 sprays in future if pest attack were not over.
- Mr. M. Sammaiah of Chintanekkonda village in Parvatagiri tehsil of Warangal, have sprayed 3 times for bollworm and sucking pests and then he stopped because he was not getting any result.
- In fact the CICR, Nagpur, also cultivated Bt. cotton in Telgaon and Tishti villages in five acres each and they too had to spray on Bt. cotton.
- Majority of Bt. farmers in Warangal have used Traser of Denocil Company for controlling pests and the chemical MRP is Rs. 1160/- for 100ml for one acre. According to Mr. Venkateshwaran of Mansa Seeds and Fertilizers, a distributor for Mahyco, about 50-60% of Bt. farmers used Traser for controlling sucking pests.
- Another important aspect of the approved Bt. cotton varieties is that its Bt. toxin is effective for only 80-100 days. Dr. Mayee, Director, Central Institute for

Cotton Research (CICR), confirmed that in Mech 162 Bt. gene effective declines after 90 days while in Mech 184 this period is a little longer, upto 120 days. The Bt. seeds were treated with Imidacloprid (Goucha) for sucking pests. But it is effective upto 35-45 days and once Bt. cotton has crossed this limit, it was attacked by sucking pests esp. Jassid and Thrips. This has been reported by almost every Bt. farmer during this study and has been confirmed by almost every scientists met by the RFSTE team during the study tour.

The field study proves that the claims made by Monsanto and Mahyco about Bt. cotton as an effective pest resistant crop has been proved false by large scale commercial planting. The Research Foundation had also conducted a field study during the first large scale field trails in 1998-1999 and went to the Supreme Court to challenge the false claims by the companies. So far Monsanto and Mahyco have not submitted any data in the public domain. Even then government has accepted their claims and cleared the Bt. cotton for commercial planting. Now thousands of Bt. cotton growers are facing tough time because of the failure of their Bt. crop. The GEAC is responsible for a great loss to Bt. cotton growers caused by their haste and irresponsible decision to give clearance to an untested technology. The corporations are liable to pay immediate compensations to India farmers.

Indian Farmers Reject Bt Cotton

Bt Cotton is just the first of genetically engineered seeds being commercialized. Other genetically engineered crops in line include mustard, rice, maize, cabbage and other vegetables. This has cautioned the Indian farmers and their leaders. Moreover the irregularities and illegalities in granting approval to the Bt cotton infuriated farmer unions and brought them together against Bt cotton. The major Indian farmers unions and organisations rejected the release and commercialization of the genetically engineered and patented Bt cotton of the Monsanto–Mahyco. These farmers unions include All India Atragami Kisan Sabha, All India Agriculture Workers Union, All India Kisan Sabha (Ajay Bhavan), All India Kisan Sabha (Ashoka Road), ARISE, Bharat Krishak Samaj, Bharatiya Khet Mazdoor Union, Bharatiya Kisan Sangh, Bharatiya Kisan Union (Ambavat), Karnataka Rajya Ryota Sangh, Navdanya and Samyukta Kisan Sabha.

The Farmer Unions demanded that :

1. That the GEAC/MOEF withdraw its permission to Mahyco allowing commercialization of Bt cotton.
2. That GEAC/MOEF ensure labeling of seeds for biosafety and environmental safety.
3. That GEAC/MOEF start building capacity at local, regional and national levels for monitoring biosafety.
4. No seeds are allowed to be sold unless the design and cropping pattern is firmly worked out for each agro-ecosystem. These designs should be printed on each packet of the seeds in all official language of the regions.

5. That GEAC/MOEF immediately take steps to create systems to establish liability in cases of genetic contamination and genetic pollution. In case of non-compliance by corporations, GEAC must ensure that the same will be held legally liable for all consequences.
6. That GEAC/MOEF immediately ensure, preferably through legal systems, that the seed corporations give full and true information to farmers on genetically engineered seed varieties produced/marketed by them and method of planting to ensure that no genes escape to contaminate crops of neighbouring farmers. This is necessary to ensure that Indian farmers are not victimised as Percy Schemiser, a farmer in Bruno, Saskatchewan of Canada, whose field was contaminated by Monsanto's genetically engineered canola and instead of him being paid by Monsanto for genetic pollution, he had to pay Monsanto \$145450 Canadian dollars (fined \$15/ac x 1030 ac, plus the value of his crop \$105,000, plus \$25,000 for punitive and exemplary damages) for stealing their genes. This is necessary to establish the polluters pays principles under the EPA, defend farmers rights and prevent companies like Monsanto from using patents and pollution to terrorize Indian farmers. In case of non-compliance by corporations, GEAC must ensure that the same will be held legally liable for all consequences.

The leaders of the Farmers' Unions stated that until the above demands are met, they we will continue and intensify their campaign against the Bt cotton and other transgenic crops.

The Chronology of Illegal Field Trials of Bt Cotton

The sequence of events, which took place in implementing the illegal trials in India, can be briefly outlined as:

24th April 1998	Mahyco applies to Department of Biotechnology for field trials
May 1998	Joint venture between Mahyco and Monsanto formed
13th July 1998	Letter of Intent issued by DBT without involving Genetic Engineering Approval Committee (GEAC).
15th July 1998	Mahyco agrees to conditions in letter of intent.
27th July 1998	DBT grants permission for trials at 25 locations.
5th August 1998	Second set of trials at 15 locations granted.
6th January 1999	PIL filed by Research Foundation for Science Technology and Ecology
8th February 1999	RCGM expresses satisfaction over the trial results at 40 locations.
12th April 1999	RCGM directs Mahyco to submit application for trials at 10 locations before Monitoring and Evaluation Committee.
25th May 1999	Revised proposal to RCGM submitted by Mahyco.

June - Nov 1999	Permission granted for different trial fields
May 2000	Mahyco's letter to GEAC seeking approval for "release for large scale commercial field trials and hybrid seed production of indigenously developed Bt cotton hybrids".
July 2000	GEAC clears for large scale field trials on 85 hectares and seed production on 150 hectares.
26th March 2002	The GEAC gave approval for commercial cultivation of Mech-12, Mech-162 and Mech-184 varieties of the transgenic hybrid cotton "Bollgard" to Monsanto-Mahyco.
25th April 2003	The Genetic Engineering Approval Committee (GEAC) denied the commercial clearance to Monsanto's Bt. cotton for the northern Indian states.

PART II

Monsanto Profile

This profile is meant to be a useful action tool for grassroots activists. It will hopefully help people target Monsanto, whether in a new campaign or an existing one. It highlights Monsanto's vulnerabilities and key strategies. It aims to focus attention on the resistance against Monsanto and its strategic responses, such as:

- Ongoing grassroots resistance against Monsanto for aggressively pushing for approval of its GE seeds in countries where farmers do not want them. Despite opposition from farmer and/or peasant-based groups in countries like Brazil, the Philippines, India and Canada, Monsanto continues to get approval to conduct field trials and for commercial release. Solidarity with farmers can help in the fight against Monsanto.
- There is presently a high profile, cross-sectoral fight being waged against the approval of GE wheat. Monsanto has submitted its Roundup Ready wheat for approval in Canada and the U.S., and is depending on the product to boost its sales over the next several years. Officials from many countries that import wheat have said that any GE or GE contaminated wheat will be refused. Stopping approval of GE wheat would be a major hit to the future of Monsanto's product pipeline.
- Concerns about food safety and environmental health continue to encourage the European Union's (EU) *de facto* moratorium on approvals of new GE seeds and imports. Meanwhile, major GE crop producers Canada, U.S., and Argentina have launched a challenge at the WTO (World Trade Organization) against the moratorium. Monsanto was part of farm lobby groups that pressured the Bush Administration to take action at the WTO against the EU.

Monsanto at a Glance

Monsanto is the leading genetically engineered (GE) seeds corporation in the world. It owns numerous seed and plant biotechnology companies, which it acquired mainly between 1996 and 1998 at a total cost of more than \$8 billion. Its first GE seeds were sold commercially in 1996 in the U.S. It has operations in more than 50 countries. While its biggest customer base is the U.S., it is relentless in seeking approval for its products in the global South, despite massive protests from farmers and communities in general.

Monsanto, and the GE seeds and foods industry in general, face a number of barriers. People are concerned about the corporate takeover of their food systems, as well as the environmental and health risks of GE crops and foods. Export farmers are concerned about losing customers as import countries are restricting their acceptance of GE products. Farmers are also concerned about contamination of their non-GE fields with pollen from fields planted with GE seeds. Farmers in the global South continue to struggle against the replacement of local, affordable varieties with expensive, corporate products.

Monsanto is no stranger to controversy given its past as a polluter. Monsanto has a strong history in chemical contamination of peoples' environments, from its production of Agent Orange - used in the Vietnam war - to its dumping of PCBs directly into soils and waterways in the U.S. Today it continues to pollute, but in other ways. Increasingly its GE crops are contaminating environments and non-GE crops, despite the opposition of people across the globe.

Monsanto Overview

Monsanto's Vulnerabilities

“Ag is a Drag”: “Ag is a Drag” is still the warning from investors about agricultural biotechnology. Monsanto is being warned to diversify away from agricultural biotech. Popular resistance has been strong enough that governments in major import markets have restricted the trade of GE food products. Certain governments have offered premiums for non-GE products. The risk is enhanced for Monsanto since being left on its own after the spin-off from Pharmacia in 2002. Monsanto no longer has this more profitable parent pharmaceutical corporation to depend on.

Dropped sales in 2002: Over the past two years Monsanto's stock price has fallen by over 50 percent. In 2002, Monsanto lost \$1.75 billion in the first nine months of the year, compared with a profit of \$399 million for the same period of 2001. There are speculations that Chief Executive Officer (CEO) Hendrik Verfaillie was forced to resign by the Monsanto Board of Directors because business was so bad. Monsanto's annual report states that the drop in sales were caused by: expiration of the patent for Monsanto's biggest selling product – Roundup herbicide; drought in the mid-west, which decreased demands for Roundup; and political unrest and economic hardship in Brazil and Argentina, two of Monsanto's biggest markets in South America.

Dropping European operations: In October 2003, Monsanto announced plans to sell off its European cereal seed business. This includes selling cereal development stations in Cambridge, England and in France, Germany, and the Czech Republic, as well as its subsidiary Plant Breeding International (located in Cambridge), which develops crops genetically engineered to produce versions of human antibodies. Monsanto also plans to cut 7% to 9% of its global workforce, that's 1 out of 11 employees, by the end of fiscal year 2004. Monsanto claims these cut backs have nothing to do with the popular resistance against GE crops and foods in Europe. It says it wants to focus more on projects that will “best capitalize on its market and technological strengths.”¹

No to GE wheat: There is presently a high profile, cross-sectoral fight being waged against the approval of GE Wheat. Monsanto is hoping to make up for lost sales with the commercialization of Roundup Ready wheat, which has not yet been approved. Stopping approval of genetically engineered (GE) Wheat in North America would be a major hit to the future of Monsanto's product pipeline. Many of the 70 countries that import Canadian wheat have stated they will refuse RR wheat or any wheat that has been contaminated by GE wheat.

Bans and moratoriums: Many countries that import crops from the U.S., Canada, Argentina and China (the largest growers of GE crops worldwide) have rejected or restricted the import of GE food products. This includes many countries in the global

South, which have strongly opposed GE crops due to concerns about environmental contamination, permanent loss of traditional varieties with GE varieties and patents held on traditional crops. U.S., Canada and Argentina are challenging the EU moratorium on new approvals of GE crops and imports at the World Trade Organization.

Resistance: Resistance against Monsanto continues to be strong across the globe. Farmers and non-farmers have been actively opposing the push of industrial agriculture, and directly targeting Monsanto. These resistance movements have had significant impacts on Monsanto's operations. Generally, people are concerned about food safety, environmental health, farmers' rights and the corporate takeover of food systems.

Bad public relations: Monsanto put itself into the public spotlight through an aggressive public relations campaign in Europe in 1997/98 that backfired. Monsanto continues to get bad press due to its general behaviour, including various lawsuits against farmers, chemical and genetic contaminations and overall aggressive push of GE seeds.

Monsanto's Key Strategies

#1 in GE seeds: Monsanto continues to be the global leader in the development and commercialization of GE seeds. In 2002, 91% of all area planted with GE crops worldwide were planted with Monsanto's seeds. Its biggest seller continues to be its herbicide Roundup, and the most planted GE seeds worldwide are Monsanto's Roundup Ready (RR) soybeans, corn, canola, and cotton. Monsanto's biggest markets for its GE seeds are in the Americas - U.S. is the biggest producer of GE crops worldwide, Argentina is the second largest producer and Canada is the third.

Current customer base: In the short term, 2003/04, Monsanto is looking to expand its business by selling more to its current customers, such as those in the U.S., Canada and Argentina, as well as South Africa, Australia, China, Mexico, Bulgaria, Romania, Uruguay, Spain, Indonesia and Germany. It hopes to get more crops with stacked or multiple traits on the market, such as herbicide and pest resistant soybeans, as well as its second-generation Bollgard (*Bt*, insect resistant) crops.

New international markets: In the long term Monsanto plans to strengthen recently opened markets (like India, Indonesia and the Philippines) and access new markets for its GE crops. Current markets are saturated or limited in other ways. For instance, 80% of soy crops in U.S. are already planted with GE seeds, and 90% in Argentina. Argentina bans any GE corn that is not already approved in the EU. In Canada, non-GE soybeans attract a premium, while 70% of canola in Canada is already genetically engineered and the rest is already effectively GE contaminated.

Trapping farmers: Farmers in the U.S. and Canada who grow Monsanto's GE seeds are forced to pay licensing fees, as well as sign technology user agreements that block them from saving seed for use the following year and make it mandatory to buy Monsanto's chemicals. If farmers are found breaking these contracts or growing Monsanto's seeds without permission, they are penalized. By the end of 1999,

Monsanto had initiated over 475 lawsuits for alleged patent infringement and violations of the technology user agreements. U.S. farmer Homan McFarling was fined \$780,00 for growing Roundup Ready (RR) soybeans without paying the license fee and Kem Ralph of Tennessee was sentenced to eight months in prison after Monsanto took him to court for saving GE cotton and soybean seed. Monsanto took Canadian farmer Percy Schmeiser to court when he was found to have RR canola in his fields without having bought the corporation's seed.

Public relations schemes: Monsanto continues to develop savvy public relations to get its earnings up over the next few years. Monsanto's main PR messages are that GE products will provide economic benefits to farmers, feed hungry people around the world, provide more nutritional foods, lead to less pesticide use and enhance soil conservation. Between 1998 and 2002, Monsanto is reported to have spent \$436 million on advertising.

Public subsidies: Monsanto relies on research that is heavily subsidized by public money. At public universities, Monsanto sponsors research, provides money for infrastructure, endows research fellowships and professorships, and licenses technologies. In the U.S., Monsanto has worked closely with the Agricultural Research Service, the United States Department of Agriculture's (USDA) key research body. Monsanto is also a part owner of the Biotechnology Research and Development Corporation, which "*combines government, academia and the private sector together in close working relationships.*" BDRC was formed after business leaders in the U.S., with close ties to USDA, successfully lobbied government officials to create and pass the 1986 Technology Transfer Act, which allowed private companies to enter into research and development agreements with federal labs. The Act, which helped the business leaders "*overcome the hurdles of public domain,*" helped set the stage for the establishment of BDRC.

Lobbying tactics: In its 2002 10K report - which all companies are required to submit to the U.S. Securities and Exchange Commission on an annual basis - Monsanto admits that genetic contamination from its GE crops has occurred. However, its language is extremely cautious (Monsanto refers to contamination as "*adventitious or unintended trace presence of biotechnology materials in seed, grain or food*") and the company is only making this statement within the context of explaining its efforts to seek regulations that "*recognize and accept the adventitious presence...*"

Board of Directors stacked with influential individuals: Monsanto Board members include: Hugh Grant, board member of the International Policy Council of Agriculture, Food and Trade; Gwendolyn S. King, on President Bush's Commission to Strengthen Social Security, and board member of weapons producer Lockheed Martin Corporation; Sharon Long, Professor of Biological Sciences and Dean of the School of Humanities and Sciences at Stanford University; Steve McMillan, Chair, President and CEO of Sara Lee Corporations and board member of the Bank of America Corporation; George Poste, member of the Defense Science Board of the U.S. Department of Defense; and Robert Steven, on President Bush's Commission on the Future of the United States Aerospace Industry.

Monsanto's Business

GE Products on the Market

Product	Countries where commercially grown (year first commercially grown) and/or received planting, food and feed approval	Other details
Roundup Ready (RR) soybeans (Resistant to Roundup herbicide)	Argentina (1996); U.S (1996); Canada (1998); Romania (1999); Mexico (2000); Uruguay (2001); South Africa (2001)	Field trials and planting of smuggled seed in Brazil. Field trials have occurred in Bolivia and Indonesia. Grown for seed in Paraguay.
RR canola	Canada (1996); U.S.(1999)	Will likely be commercially grown in Australia in 2003/04.
RR cotton	U.S. (1997); Australia (2000); Argentina (2001); South Africa (2000)	Being developed for Brazil and Turkey.
RR corn	U.S. (1998); Bulgaria (1999); Canada (1999)	Pushing for approval in Argentina. Has been approved for 'cultivation and use' in South Africa. Field trials planned for India and have been conducted in Indonesia.
Bollgard cotton (Protection from budworm and bollworms)	Australia (1996); Mexico (1996); U.S. (1996); Argentina (1998); China (in several provinces) (1998); India (2002); Indonesia (2001); South Africa (1998)	Field trials are occurring in Burkina Faso
Bollgard II cotton (Second generation Bollgard cotton)	U.S. (2003); Australia (since 2003 in New South Wales and southern Queensland)	Pushing for approval in Argentina, Mexico and South Africa
YieldGard corn (Protection from corn borers and corn earworms)	U.S. (1997); Canada (1997); South Africa (1999); Argentina; Germany (2000); Philippines (2002); Honduras; Spain	Pushing for approval in Brazil, Bulgaria, the Honduras, Venezuela, Mexico, Hungary and Indonesia.
YieldGard Rootworm corn (Specifically targets corn rootworm larvae).	Canada (2003) ¹ Limited supplies available for the 2003 season; U.S.	
Bollgard/RR cotton	Australia; Mexico; U.S. (1997); South Africa (2002 approved)	
Bollgard II/RR cotton		Has been approved by regulatory authorities in the U.S. Monsanto has applied to plant in South Africa at two sites for production for U.S. seed supplies.
YieldGard/ RR corn	U.S. (2000)	
YieldGard Rootworm/RR corn	U.S. (2003)	
Posilac	U.S	GE growth hormone for increased dairy production in cattle. Extremely controversial product, which was not approved in Canada despite aggressive tactics by Monsanto.

Monsanto has also conducted field trials in: Chile; Columbia; Egypt; Guatemala; Honduras; Thailand; Japan; New Zealand; Czech Republic; Poland; Hungary; Ukraine; Russia; Bulgaria; Turkey; Israel

Monsanto Choice Genetics: Monsanto also has a swine genetics business called Monsanto Choice Genetics. It provides a line of pigs for breeding, called Genepacker, that are advertised as increasing the number of pigs produced per sow's lifetime, more consistent fertility rates and larger litter size. Through this business, Monsanto worked in partnership with Incyte Genomics to create the map of the swine genome. Monsanto expanded its swine genetics business in 2001 when its Canadian operation, Monsanto Canada, acquired Unipork Genetics, a division of United Grain Growers Ltd., based in Manitoba, Canada.

GE Products in the Pipeline

Monsanto currently invests more than 80 percent of its research and development budget into seed, genomics and biotech². Monsanto is depending on new product developments and approvals to boost its sales over the next several years, particularly in the GE seeds sector. The following is a list of key GE products that the corporation is working on.

Roundup Ready (RR) wheat: submitted for approval in Canada and the U.S, and could be approved for full commercial production by 2004. Export grain farmers are concerned about losing markets because many of the 70 countries that import Canadian wheat have stated they will refuse RR wheat or any wheat that has been contaminated by GE wheat.

Terminator Technology (sterile seeds): being developed and patented by Monsanto and other companies and public institutions (Syngenta, DuPont, BASF, Delta & Pine Land, the USDA, and Cornell, Purdue and Iowa State universities). Globally, farmers and non-farmers have voiced strong opposition to Terminator, which could make other crops' seeds sterile.

High starch corn for ethanol: being developed for ethanol production. While the high starch content is not obtained through genetic engineering, it is likely RR or Bt varieties of corn will be used. Using corn, in contrast to fast-growing grasses and trees, for ethanol is much less energy efficient. Monsanto's corn would require agrochemical inputs, while grass and trees would not.³

Functional food crops (functional foods are generally defined as containing special ingredients claimed to have health benefits): being developed by Monsanto so it can claim that biotech 'benefits the consumer.' However, these products will be most beneficial to food giants like Unilever and Nestle, because they will help cut costs in food processing. Some of the functional food crops that Monsanto has in its product pipeline:

- High stearate canola oil: does not contain any trans fatty acids. Will be used in the production of "healthy" margarines or shortenings. Speeds up processing.

- Increased essential amino acid level and/or oil content in corn and soy: for human food and animal feed. Involves genetically engineering certain amino acids into corn and soybeans. Eliminates the need to add these nutrients during processing.
- High omega-3 canola: developed by taking the gene from algae that produces omega-3 and inserted it into canola oil. Omega-3 fatty acids (naturally found in fish that eat algae) are said to help improve heart conditions and combat mental illness.
- Medium chain fatty acid canola: For use in medical nutrition (such as intravenous and infant formulas) and, potentially, in consumer products such as high-energy snacks and beverages and better-tasting low-calorie potato chips.

Vitamin A mustard, aka "Golden Mustard": being developed with the Tata Energy Research Initiative in India and Michigan State University's Ag Biotech Support Project for cooking oils to be sold in North and East India. This is part of Monsanto's participation in the Global Vitamin A Partnership (established by Hilary Clinton) - a public-private initiative involving USAID, the World Health Organization, UN Children's Fund (UNICEF). Monsanto is using this product to say that it is helping to 'feed the hungry' and 'save lives.' Meanwhile, there are numerous social and health concerns with the introduction of Golden Mustard.

Virus resistant crops in the global South - Monsanto is working with different research institutions in the global South, along with universities in the U.S. and groups like the United States Agency for International Development (USAID) and the International Service for the Acquisition of Agri-Biotech (ISAAA) to develop virus resistant crops. The strategy here is to provide free biotech research and development support for a local subsistence crop familiar to farmers and communities as a way of convincing people to trust GE seeds.⁴

Drought resistance genes: identified through a partnership between Monsanto and Mendel Biotechnology (Hayward, CA), Paradigm Genetics (Research Triangle Park, NC) and Ceres, Inc. (Malibu, CA). Research is in its early stages.⁵ Monsanto is promoting this research to convince people that they are developing crops that will help 'feed the world.'

Sales

(figures in USD, billions)				Annual Sales			
Sales by Country/Region				Product categories	2002	2001	2000
Country/Region	2002	2001	2000				
United States	2,986	3,358	3,089	'Agricultural Productivity'			
South America	.571	.923	1,103	(agrochemicals, rBGH, swine lines, ornamental pesticides)	3.1	3.7	3.9
Europe-Africa	.619	.626	.635				
Asia-Pacific	.316	.370	.449				
Canada	.181	.185	.217	'Seeds and genomics'	1.6	1.7	1.6
Total	4,673	5,462	5,493	Net sales	4.7	5.4	5.5

Operations

Headquarters: 800 North Lindbergh Blvd., St. Louis, Missouri 63167, United States

Global offices and plants located in: Argentina; Australia; Austria; Belgium; Brazil; Bulgaria; Canada; Chile; China; Colombia; Costa Rica; Croatia; Czech Republic; Denmark; France; Germany; Greece; Guatemala; Hong Kong; Hungary; India; Indonesia; Italy; Japan; Kenya; Korea; Malawi; Malaysia; Mexico; Pakistan; Philippines; Poland; Portugal; Puerto Rico; Romania; Russian Federation; Senegal; Singapore; Slovakia; South Africa; Spain; Taiwan; Tanzania; Thailand; Turkey; Ukraine; United Kingdom; United States; Venezuela; Vietnam; Zimbabwe

Subsidiaries

(does not include those carrying the Monsanto name)

Agracetus (Middleton, Wisconsin), acquired in 1996. Functional food products and plantibodies.

Asgrow (Des Moines, Iowa), acquired in 1997. Seed production and marketing company.

Calgene (Davis, California), acquired in 1997. GE seeds for produce, cotton and oils

Cargill Seeds, acquired in 1998 for \$1.4 billion. Operations in Asia, Africa, Central and South America and Europe (excluding UK).

Corn States Hybrid Service (Des Moines, Iowa), acquired in 1997 for \$1 billion.

DEKALB genetics (DeKalb, Illinois), acquired in 1998 for \$2.3 billion. Has 11% of US corn seed market (2nd only to Pioneer Hi-Bred). Independently markets Monsanto technology.

First Line Seed (Guelph, Canada), acquired in 1998. Producer/distributor of RR soybean varieties.

Holden's Foundation Seeds Inc.: Acquired in 1997 for US\$1 billion. Develops, grown and supplies corn germplasm. Major supplier of parent seed to retail seed companies. (Acquisition included Corn States Hybrid Service, Inc. and Corn States International)

Limagrain Canada Seeds (Saskatoon, Saskatchewan), acquired in 2001. Major canola seed research, production and marketing company.

Maharasta Hybrid Seed Co (Mahyco) (Dawalwadi, Jalna), acquired in 1998. India's largest private seed company. Monsanto India owns 26%. There is a joint venture between Monsanto and Mahyco (50/50) called Mahyco Monsanto Biotech (MMB). Has commercially launched Bollgard cotton in India.

Monsoy, acquired by Monsanto in 1996. Largest soybean suppliers in Brazil.

PT Monagro Kimia, (Jakarta) Indonesia subsidiary of Monsanto.

Sementes Agrocere (Sao Paulo), acquired in 1997. Has 30% share of Brazilian corn seed market.

Board of Directors

Frank V. AtLee III, 62, Chair (Term: 2000-2004): Retired president of former American Cyanamid Company and chairman of the former Cyanamid International. Serves on the boards of Antigenics Inc. and Nereus Pharmaceuticals, Inc.

Hugh Grant, 45, President and CEO (2003-2006): named director and Monsanto's president and CEO in May 2003. Has been with Monsanto since 1981. Board member of the International Policy Council (IPC) on Agriculture, Food and Trade, member of the executive committee of the Microcredit Summit Campaign, international advisory board member of the Scottish Enterprise, board member of The United Way of Greater St. Louis.

Gwendolyn S. King, 62 (2001-2004): President of Podium Prose. Retired senior vice president, corporate and public affairs, PECO Energy Company. Served as the eleventh Commissioner of Social Security, 1989-1992. Appointed to President Bush's Commission to Strengthen Social Security, 2001. Board member of Lockheed Martin Corporation, Marsh and McLennan Companies, Inc., and Countrywide Financial Corporation.

Sharon R. Long, Ph.D., 51 (2002-2004): Professor of Biological Sciences and dean of the School of Humanities and Sciences at Stanford University. Elected to the National Academy of Sciences, the American Academy of Arts and Sciences, and the American Philosophical Association.

C. Steven McMillan, 57 (2000-2006): Chair, president and CEO of Sara Lee Corporation. Also serves on the boards of Bank of America Corporation and Sara Lee Corporation.

William U. Parfet, 56 (2000-2005): Chair and CEO of MPI Research Inc. Also serves on the boards of CMS Energy Corporation, PAREXEL International Corporation and Stryker Corporation.

George H. Poste, 58 (2003-2005): Chief executive of Health Technology Networks. Member of the Defense Science Board of the U.S. Department of Defense, and chairs that group's Task Force on Bioterrorism. Also serves on the boards of AdvancePCS, Maxygen, Inc., Illumina, Inc., and Orchid BioSciences, Inc.

Robert J. Stevens 51 (2002-2006): President, chief operating officer and director at Lockheed Martin Corporation. Was appointed to President Bush's Commission on the Future of the United States Aerospace Industry in February 2001.

Monsanto's Public Relations

Advertising Costs

(figures in USD, millions)

Year	Cost
2002	\$70 million
2001	\$96 million
2000	\$103 million
1999	\$96 million
1998	\$71 million
Total	\$436 million

Key Public Relations' Mottos

1997/1998/1999:

"Food, Health and Hope"

Monsanto began using this motto when it started selling its first GE seeds. This was Monsanto's initial attempt at transforming its image from a chemical to a 'Life Sciences' company. Formerly Monsanto used catch phrases like "Without chemicals, life itself would be impossible." Generally, a life sciences company applies biotech to seed, pharmaceutical (for humans and animals), vitamin, chemical and/or food production.

1999/2000:

"Abundant Food and a Healthy Environment"

Monsanto began pushing public relations' (PR) messages that claimed biotech would help 'feed the world.' It was learning from the backlash of its earlier PR aggressions and was working out a new strategy to save itself from the mess it had created, including hiding behind pharmaceutical giant Pharmacia, which had bought up Monsanto in 1999. Realizing that the public's confidence in GE crops and foods was low, Monsanto and other agro biotech corporations were turning towards a new strategy - promoting so-called benefits of biotech in medicine. Biotech, they began saying, would 'help save lives.'

2000/2001/2002:

"The New Monsanto Pledge: Dialogue; Transparency; Respect; Sharing; Benefits."

Launching a comeback to bold PR moves, Monsanto's strategy became a new 'Pledge' that superficially addresses peoples' concerns of GE crops/foods. Monsanto began using

Key Events

Europe: In 1997/98 Monsanto launched an aggressive public relations campaign in Europe, particularly in the United Kingdom, geared mainly towards the upper and upper-middle class. The goal was to convince the public that its biotech products were “environmentally sustainable.” The campaign backfired. People began to actively oppose the claims Monsanto made about the so-called ‘benefits’ of GE seeds/crops/food.

Fox rBGH suit: In 1997, Fox Television reporters Jane Akre and Steve Wilson were notified by a general manager at WVTV (a Fox Television affiliate) that they would be fired for creating a critical documentary on Monsanto’s Posilac (recombinant Bovine Growth Hormone). This was after a lawyer, hired by Monsanto, had sent a threatening letter pressuring Fox not to air the documentary.†

Fake protestors: In December 1999, *The New York Times* reported that Monsanto’s PR company, Burson-Marsteller, paid a Baptist Church from a poor mainly African American neighbourhood to bus in “demonstrators” to disrupt an anti-GE street protest outside a U.S. Food and Drug Administration public hearing in Washington DC. The “demonstrators” carried placards such as “Biotech saves children’s lives” and “Biotech equals jobs.” This was part of a larger strategy to get church members, union workers and the elderly to speak in favour of GE foods. (Melody Petersen, “Monsanto Campaign Tries to Gain Support for Gene-Altered Food,” in *The New York Times*, December 8, 1999).

Council for Biotechnology Information (CBI): In March 2000, Monsanto, Dow, Aventis (now Bayer), Novartis (now Syngenta), DuPont and BASF entered a multiyear contract with BSMG to target doubts about GE foods in North America. The corporations agreed to contribute a total of \$250 million to this PR campaign. Two groups were established for the sole purpose of promoting GE foods and crops. First the Alliance for Better Foods was created, then the Council for Biotechnology Information, which runs television, radio and print advertisements throughout North America promoting biotech.

Representation: Monsanto uses ‘representatives’ from Asia and Africa in its PR strategy to counter criticisms and convince the public that people in the global South accept biotech. For example, Chengal Reddy, who poses to be a farmer from the state of Andhra Pradesh in India, is featured prominently in a glossy 2000 Monsanto brochure “A Celebration of Fifty Years in India.” He is also found backing Monsanto’s policies in several pieces on the Monsanto India website (www.monsantoindia.com). Reddy, however, has never farmed in his life and his family is a prominent right-wing political force in Andhra.

Give-aways: Monsanto began a trend in 2000 of donating its genomics research ‘free-of-charge’ and ‘royalty-free’ to help develop GE crops that would ‘feed the world.’ It started with its data on the rice genome. Monsanto says this is part of its ‘New Pledge’ on ‘sharing.’ In reality this is part of a larger strategy to introduce GE versions of familiar crops in order to build confidence in GE and acceptance for mass commercialization of major cash crops.

words like ‘dialogue,’ ‘transparency,’ ‘respect,’ ‘sharing’ and ‘benefits’ – the same words used by many of its critics. However, in reality Monsanto has a different understanding of the words. For instance, Monsanto continued to aggressively push for approval of its GE seeds in India and the Philippines, despite massive protest from farmers.

2003:

“Imagine... helping others help children to see... corn fueling cars... better crops helping farm families live better lives... dirt being one of our national treasures... growing crops with less pesticide sprayings... innovative agriculture that creates incredible things”

Monsanto begins a new motto, this time it's 'Imagine' with the 'ag' in a different colour (as appears on the official Monsanto website) to suggest 'agriculture.' Monsanto is using similar messages as it has in the past. In a new report by Sarah Wright called "Selling Food, Health and Hope™: The Real Story Behind the Monsanto Corporation," she tells it like it is,

Imagine a world where giant chemical corporations control the food we eat, the seeds we grow and the water we drink. Imagine a world where it is not even possible to save a seed without facing up to seven years in prison; a world where tomatoes contain the genes of fish, and the seeds of our plants are genetically altered to be sterile. Imagine a world where the water and air are poisoned.¹

Monsanto Markets

One of Monsanto's longer-term strategies is to open up more markets for its GE seeds. In particular, it is seeking approval for its GE seeds in countries like Brazil, which is a key soybean producer, India, which is a major cotton producer, the Philippines where corn is a significant cash crop, and Burkina Faso, which is a major cotton producer in West Africa. Already, Monsanto has secured a major presence in the U.S., Canada, Argentina, South Africa and Australia with its GE seeds. Monsanto is using approval of its GE seeds in countries in the global South to claim that 'hungry' nations are in favour of biotech and need the technology.

A more recent claim made by biotech proponents is that the resistance to GE crops and foods in Europe could impede progress and global use of GE, which could be of great benefit to farmers and consumers, particularly in the global South. European Union's *de facto* moratorium on the approval of new GE seeds and imports has also been criticized as negatively impacting African exports of crop commodities. In reality, however, African countries do not export crops like corn and sweet potato to Europe. Monsanto's Yieldgard corn has been approved in South Africa, while the corporation has been developing a GE virus-resistant sweet potato in Kenya. The only crop that is potentially affected is cotton. Even still, South Africa, which grows Monsanto's Bollgard cotton commercially, does not export cotton to the EU. Cotton is actually imported to the country because farmers there cannot produce enough to meet domestic demand.

Subsaharan Africa

Monsanto had made intensive efforts to get into other African markets with its GE seeds. After being unsuccessful in Zimbabwe, Zambia and Tanzania, it made its way into South Africa, as well as Kenya, Uganda and Burkina Faso. In addition, Monsanto has recently joined forces with other GE seed giants (including Syngenta, Dow and DuPont's Pioneer) to establish The African Agricultural Technology Foundation. Through the Foundation, the corporations will work with African scientists on technologies that, they claim, will help increase food production. The Foundation's purpose is to identify crop problems in Africa that might be amenable to technological solutions, then negotiate for assistance and patent licenses with the corporations, and seek support from African governments to help distribute outputs to small-scale subsistence farmers across Africa. This appears to be another public relations move and tactic to infiltrate agricultural production systems in Africa.

Burkina Faso

Bt cotton field trials: In late June 2003, Monsanto began conducting trials of its Bollgard cotton at two research stations in Burkina Faso, the first such tests in West

Africa. The trials are part of a research agreement signed between Monsanto and the country's government.² In July 2003, SOFITEX, or the Burkina Faso Fibre and Textile Company – a quasi-government company, organized an international workshop on GE and cotton. In attendance were representatives from Monsanto and Syngenta, which are expected to work closely with Burkinabe researchers to develop *Bt* cotton using a local variety.

There are hopes that the GE cotton will eventually be grown in the rest of West Africa. Burkina Faso is the second largest producer of cotton in West Africa after Mali and its economy relies on cotton that provides more than 60 percent of the national income. SOFITEX is hoping the *Bt* crops will help fight pests that have become resistant to pesticides, as well as increase yields. Burkinabe farmers have been lured by claims made by some South African farmers of increased yields since growing *Bt* cotton. Yet, there are concerns that the GE seeds will be too expensive for farmers.

But while high yields are being promised, there has already been evidence of overproduction, which has led to low selling prices. In the 1990s, the International Monetary Fund/World Bank pushed the reorganization of Burkina Faso's agricultural sector. The government provided new seed varieties and other support services to cotton farmers to increase yields for export. Cotton production increased from 117,000 tonnes in 1993/94 to about 400,000 tonnes in 2001/02. As a result, Burkina Faso has an abundance of cotton. The international selling price is low due to massive U.S. subsidies to American cotton farmers, who are also overproducing and dumping onto the market. Meanwhile, resources (e.g. arable land and water) for food production in Burkina Faso are limited.³

South Africa

Monsanto's influence in South Africa: South Africa is now the fifth largest GE crop producing country worldwide, producing RR soybeans, Bollgard cotton and YieldGard corn commercially. South Africa's National Strategy on Biotechnology, created in 2001, was based on consultations with Monsanto (as well a large commercial farmers' association and other biotech corporations, including Syngenta). It is reported that Monsanto and the Department of Agriculture have been handing out free GE seeds to small-scale farmers in South Africa. Monsanto has also provided money, land and infrastructure to train black farmers in South Africa. This has occurred amidst limited resources towards strengthening the black commercial farming sector by the country's government. In 2000, Monsanto converted its research station in Delmas Mpumalanga into the Buhle Academy and agreed to fund Buhle for its first three years of operation (from 2000 – 2003). Monsanto says that Buhle contributes to social and economic improvements of local agricultural communities. But prospective students at Buhle are required to show they have access to land before they can gain entry into the Academy, meaning that admittance is limited since the majority of farmland in South Africa is owned by white farmers. And while 120 farmers have been trained at the Academy there is no evidence that this has led to any useful results.

The Makhathini Flats: Perhaps the most significant presence of Monsanto's GE seeds is the Makhathini Flats, in the country's north-eastern corner, where 95% of the 4,000 smallholder farmers are growing Bt cotton. Why such a massive adoption? Vunisa Cotton has an agribusiness monopoly in Makhathini. It is a private, commercial supplier of seed, fertilizer, pesticide, credit and information to smallholder farmers in the region, as well as a buyer of cotton harvest. Vunisa heavily promotes and sells Bt cotton seed. (The seed is supplied by Delta & Pineland, and was developed using a Bt gene owned by Monsanto). Many poor farmers in Makhathini have little choice but to enter contracts offered by Vunisa whereby Bt cotton seed is loaned on the condition that crops are sold back to the company at 20% to 40% of the world market price, putting farmers into a cycle of loans and debt.

There are claims that Bt cotton has led to economic benefits for smallholder farmers in Makhathini but they are heavily influenced by Monsanto. From 1998 to 2000, researchers at the University of Reading (Berkshire, UK) conducted a survey of farmers, who were not chosen from a random sample but handpicked with the help of Monsanto. Critics point out that farmers spend more money on GE seeds, which are twice as expensive as conventional ones, than they save in pesticide reductions. Other perceived weaknesses are the vulnerability of Bt cotton crops in South Africa to pests like the pink bollworm and jasids (or leafhoppers), and the susceptibility of the crops to American bollworm during the middle and end of season and times of stress (like low oil fertility or minimal rainfall) when levels of Bt toxins are low in the GE plants. In addition, new pests, such as sting bud, have appeared (as is reported in China).

Paying off farmers: Selling a positive image of itself to farmers, policy makers and critics, Monsanto has been paying black farmers to promote GE crops. T.J. Buthelezi of Makhathini has been paid by Monsanto to act as an African 'representative.' Buthelezi has spoke of his positive experiences with Bollgard cotton at conferences and events around the world. He has also met with U.S. Congress members and was paid by Monsanto to have lunch with U.S. Trade Secretary Robert Zoellick at the corporation's office near Pretoria. In August 2002 Buthelezi and Monsanto organized pro-biotech booths, interviews and rallies at the World Summit on Sustainable Development in Johannesburg. In May 2003, when Zoellick publicly announced the U.S. challenge against EU's *de facto* moratorium at the WTO, Buthelezi's was by his side. While Buthelezi is made out to be a 'small farmer,' he is actually one of Makhathini's largest, with 66 acres of land. Monsanto has also flown four other black South African GE crop farmers to London, where they spoke at a private conference hosted by the Commonwealth Business Council, before heading on to Denmark and Germany.

Resistance: BioWatch and Safeage are two advocacy organizations that have been working on anti-biotech campaigns in South Africa. BioWatch is involved in monitoring the impacts of GE organisms in South Africa. Safeage (South African Freeze Alliance on Genetic Engineering) has launched a campaign that demands a five-year freeze on the growing of GE crops in open fields until the technology is proven safe,

environmentally harmless and in the public interests of the people of South Africa and neighbouring countries, the import and export of GE foods and crops and the patenting of genetic resources for food and crops.

South and Southeast Asia

South and Southeast Asia have become key targets for Monsanto. Over the past few years, despite massive grassroots resistance, Monsanto has gained commercial approval for its Bt cotton in India and Indonesia, and Bt corn in the Philippines. Monsanto has been relentless, as it sees this region as being key to its economic growth.

India

Bt cotton: In March 26, 2002 three varieties of Monsanto's Bt cotton were approved for commercial cultivation in six states located in central and southern India - Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra and Tamil Nadu. In these six states, Bt cotton acreage increased from 30,000 hectares in 2002 to 100,000 hectares in 2003. Monsanto hopes to have more hectares covered as the government allows for greater quantities of the seed to be sold. In addition, in October 2003, Indian Agriculture Commissioner Charudatta D. Mayee announced that an additional 25 varieties of Bt cotton will likely be released onto the Indian market by 2005 from companies like Raasi and Ankur Seeds. India is among the top 10 seed markets in the world.*

Monsanto's Bt cotton is distributed by Mahyco Monsanto Biotech, a joint venture between Monsanto and its partial subsidiary Maharasta Hybrid Seed Co (Mahyco). Monsanto also has seven partners in India developing variants of its Bt cotton. Mahendra and Paras of the Emergent group, Nath Seeds, Ankur Seeds, Ajeet Seeds, Raasi Seeds, Krishi Dhan and Nuziveedu Seeds are preparing to release their Bt cotton hybrids for commercialisation by 2006. While Nath is sourcing the gene from the Biocentury Transgene Company, a Chinese firm, the other players have entered into sublicensing agreements with Monsanto.

Bt cotton failure?: There are a number of reports coming in that point out the failure of Bt cotton in India. One study was conducted by Acharya N.G. Ranga Agricultural University in 2003 and was based on a survey from 100 farming families who were selected by random sampling of those who grew Bt cotton in Maharashtra and Andhra Pradesh. The Bt cotton was found to produce fewer bolls per plant and shorter fibre length than non-GE crops, and did not protect against pink bollworm. It found that seed is about 4 times more expensive than local non-GE hybrids, while savings in pesticides were modest.⁴ A study conducted by the Research Foundation for Science,

*Rabobank International forecasts further consolidation of the Indian seed industry, which is already among the top 10 in the world, with players either exiting the market or being acquired by larger players. The Association of Seed Industry projects that India's traded seed market is set to triple by 2010 as more farmers adopt commercial seeds to boost yields.

Technology and Ecology in 2002 (October-November 2002) in Maharashtra, Madhya Pradesh, Andhra Pradesh and Karnataka showed that Monsanto's cotton did not protect the plants from the American Bollworm and that there was a 250-300% increase in attacks by non-target pests like Jassids. It also found that *Bt* plants became prey to fungal diseases like fusarium, gave very low yields, fetched a low price in the market and required more fertilizers and water than non-GE crops.⁵ In the spring of 2003, the Genetic Engineering Approval Committee rejected the Mahyco's application for *Bt* cotton in Northern states because the crop is prone to leaf curl virus.

An anomaly to the studies mentioned above, as well as to others, is a paper published in February 2003 in the influential journal *Science*. The paper, by two researchers from the University of California at Berkeley and the University of Bonn, states that average yields of *Bt* cotton were higher than yields from non-*Bt* cotton by 80% during 2001 field trials in India⁶. The findings from this study have been heavily promoted by Monsanto and other biotech proponents. Importantly, Qaim and Zilberman based their paper on farm field trials conducted by Mahyco, the same experiments that the Indian federal government used to make its decision on approving commercial production of *Bt* cotton.

Resistance: The approval of *Bt* cotton was highly controversial. Activists allege that Monsanto illegally tested its *Bt*-cotton seeds in India - Vandana Shiva exposed these trials in 1998. That same year, the Karnataka State Farmers Association, which includes 10 million farmers in the Southern Indian state, launched its Operation Cremate Monsanto campaign in 1998 in response to the secretive plantings. Farmers burned entire fields of *Bt* cotton trials. GEAC has even had to order that illegal test plots of Monsanto's *Bt* cotton be destroyed. Another campaign called Monsanto Quit India was also launched in 1998, symbolically on the 9th of August - the anniversary of the day that Gandhi told the British to 'Quit India.' The campaign was backed by a coalition of non-governmental organizations (NGOs). It was launched in response to the purchase of Mahyco, the largest Indian seed company, the takeover by Monsanto of a lab in India's premier research institute, the Indian Institute of Science in Bangalore, the free import of GE soybeans into India and the illegal field testing of Monsanto's Bollgard cotton. Thousands of postcards were distributed to NGOs, community groups and farmers across India. Within four months of the campaign launch, more than 10,000 people signed and sent the postcards to Monsanto's headquarters in St. Louis, Missouri.

Indonesia

***Bt* cotton in Indonesia:** Indonesia was the first country in Southeast Asia to grow GE crops. Yet in Indonesia, the only regulation on GE products is a Joint Decree signed by the Minister of Agriculture, Minister of Health, Minister of Forestry and Plantation and the State Minister of Food and Horticulture. It states that GE products are safe unless proven otherwise. The government's official response to GE crops is still unsettled. Within the government are clashes of opinion. The Ministry of Environment

is against the introduction of GE crops without further testing, while the Ministry of Agriculture says that GE crops are more productive than conventional crops and can be used to solve food shortages in Indonesia.

On March 15, 2001 40 tons of Monsanto's Bt cotton were flown into South Sulawesi. The seeds, to be sold to farmers in South Sulawesi, were imported from South Africa by Monsanto's Indonesian subsidiary PT Monagro Kimia. Activists protested the government since the seeds had not gone through the required quarantine process before being released to the public. The shipment of seeds came only five weeks after a decree was signed by the Minister of Agriculture, which allowed for a limited release of Bt cotton in seven districts in South Sulawesi. Meanwhile even before the decree was signed, PT Monagro Kimia had conducted secretive field tests for Bt cotton in two districts in South Sulawesi, involving 600 farmers and 500 hectares of land.

Farmers deceived in field test: Prior to these tests, extension workers from the country's Agricultural Service told farmers that *Bt* seeds would produce higher yields – as many as four tons of cotton per hectare in any kind of soil – and lead to greater profits. (Meanwhile, local varieties of seed the farmers usually planted had become hard to find. Some farmers felt that this was a false shortage created to force farmers to try Bt cotton seed.) Farmers, who were required to buy the Bt seeds for the tests, were also told that PT Branita Sandhini, a subsidiary of PT Monagro Kimia, would buy the crops.

After several months of growing Monsanto's Bt cotton, the farmers realized they had been deceived. They did not see larger yields. Only 2% of the farmers produced four tons per hectare, while many farmers had yields of only 70 to 120 kg per hectare. Data from the Ministry of Agriculture indicates that cotton production in Indonesia yields 400 to 500 kg per hectare annually. PT Branita Sandhini refused to buy farmers' crops. When farmers tried to sell their cotton to other buyers, none were willing to buy it because they were afraid of retaliation from PT Branita Sakhini. In desperation, farmers burned the cotton. Some farmers had even shifted from growing food crops in hopes that the Bt cotton would provide them with sufficient returns.

More farmers unhappy: Farmers who have been growing Bt cotton for commercial purposes have been faced with increasing prices over the past three years. Even for the farmers who participate in the field tests the price for Bt cotton seed increased from Rp40,000/kg to Rp120,000/kg (Rp 8,888 = USD 1) from planting to harvest time. In contrast, the buying price of rough cotton has been decreasing. A survey conducted by YPR, a local non-governmental organization in Bulukumba (located on the south-eastern coast of South Sulawesi), revealed that Bt cotton production was on average less than a ton per hectare. Around 24 farmers, popularly known as Monsanto-organised Bt cotton growers, lodged a complaint to the legal aid foundation chapter of South Sulawesi. They revealed that Monsanto, without clear reason, has discontinued supplying Bt cotton seeds since March 2002. As a result, they missed their 2003 planting season. They are demanding around Rp200 billion as compensation from Monsanto.

The Philippines

Monsanto relentless with *Bt* corn: In December 2002 Philippine authorities approved Monsanto's Yieldgard corn making the Philippines the first Asian country to approve commercial growing of *Bt* corn. Monsanto has been relentless in its efforts to get its *Bt* corn approved in the Philippines. Several bills seeking to regulate genetically engineered crops were submitted to Congress but have not made progress. Monsanto and AGILE (a lobby group that receives USAID funds) have been trying to block the passage of these bills⁷. Meanwhile, during a meeting with the group, Art Salazar, head of the Department of Agriculture's Corn Program, admitted that contamination of the country's agricultural crops had already occurred due to field testing of *Bt* corn, despite the Department's earlier claims that native corn varieties and other plants would not be contaminated.

Resistance: Much like the controversy in India, Monsanto used illegal field trials. Activists resorted to direct action after Monsanto and Pioneer Hi-Bred were sued for illegal field tests of *Bt* corn in 1999 and 2001. In August 2001, close to 800 farmers, indigenous Lumad people, students and others participated in "Operation Bunot (uproot)," pulling all of the *Bt* corn plants from a 1,700 square metre experimental field owned by Monsanto's Agroseed in Maltana village in southern Philippines. In both cases the companies failed to appear in court until the field trials were over, the crops harvested, and the case was moot. Peasants and farmers, through organizations like *Kilusang Magbubukid ng Pilipinas* (KMP, aka the Philippines Peasant Movement, see www.geocities.com/kmp_ph) and Resistance and Solidarity Against Agrochemical TNCs (see www.geocities.com/resist_agtncs/index.html) have been actively protesting the testing and commercialization of Monsanto and Pioneer's *Bt* corn. They argue that *Bt* corn is not helpful to them since the GE corn is intended for feeding animals for the meat industry and not for direct human consumption. As well, they say that the infestation of corn borers is not a serious problem in the southern Philippines, where field trials occurred, and peasants have been able to manage the pests on their own. Most recently, a small group of environmentalists went on a hunger strike at the Department of Agriculture to demand a moratorium on the commercialization, sale and planting of GE crops. The strike lasted a month. One of the hunger strikers, following the end of the strike said, "We have done everything humanly possible to stop these poisoned seeds. We have not failed. The Macapagal administration has failed us." The strikers ended their fast so that they could join the efforts to control *Bt* corn contamination and to stop further genetic contamination by other GE crops.⁸

Central and Eastern Europe

Gaining acceptance for its GE seeds has been a major challenge for Monsanto in Western and Northern Europe. In October 2003, Monsanto announced that it was pulling out of its European cereal seed business, and selling its subsidiary Plant Breeding International (located in Cambridge, England). In 1998, the European Union, consisting of Western and Northern European nations at the time, established its de

facto moratorium on new approvals of GE seeds and imports. This presented a major blow to Monsanto and other GE seed corporations. Monsanto joined farm lobby groups that pressured the Bush Administration to challenge the moratorium at the World Trade Organization (WTO). (Rufus Yerxa, former U.S. Ambassador to the General Agreement on Tariffs and Trade and International Counsel to Monsanto, was appointed as the U.S. deputy to the new Director General of the WTO). In the meantime, Monsanto has been targeting countries in Central and Eastern Europe like Bulgaria and Romania (not expected to officially join the EU until after 2004) to make its way into European markets.

Bulgaria

Why Bulgaria?: In 1998, Monsanto (along with DuPont's Pioneer and Novartis, now Syngenta) applied for permits to commercialize GE crops in Bulgaria. By 1999, Monsanto's RR corn and Yieldgard corn were being grown by farmers in the country. Corn is Bulgaria's main export crop. Bulgaria is now caught between aggressive GE seed pushers like Monsanto, and corporate food processors and commodity traders who want GE free products for the EU market.

In 1996, Bulgaria became the first country in Central and Eastern Europe to establish regulations for the biosafety of GE higher plants. (It should be noted, however, that this regulation is based on a law from 1958 on Seeds and Seed Material, and was not required to be passed by parliament). This provided Monsanto with incentive to seek approval in Bulgaria. Based on research undertaken in countries like Poland and Hungary (as well as South Africa) Monsanto is reluctant to initiate GE experiments in the complete absence of any regulations. Notably, an advantage for Monsanto is that Bulgaria, as opposed to countries in Western Europe, does not require public access to information and participation when it comes to GE products. Releases of GE organisms are in fact kept secret by law. Monsanto's initial interest in Bulgaria was also related to the fact that the country had not yet been officially invited to join the EU and was therefore not expected to harmonize its regulations with those of the EU. (Bulgaria was officially invited to join the EU in 2000).

As a result of the government's secrecy, there are conflicting reports of the commercial growth of GE crops in Bulgaria. As of 2001, the official line of the government was that only field trials of GE corn had been taking place in Bulgaria since 1998. But in 2000, Panacea, a seed distributor in Bulgaria, was selling Monsanto's RR corn seed to farmers for \$(USD) 907 per package, which contained 5 packets of seed (each containing 80,000 to 100,000 seeds) and 30 litres of Roundup.⁹

Monsanto connection: In Bulgaria it is the Council for the Safe Use of GE Higher Plants that has the authority to permit the import and growth of GE seeds in the country. This Council was established in 1998 out of Bulgaria's 1996 regulations on biosafety. The Council, chaired by the Deputy Minister of Agriculture, includes Professor Atanas Atanassov as its Executive Secretary. Prof. Atanassov is the Director of the Institute for Genetic Engineering. According to a report called "*Bulgaria: The Corporate European*

Playground for Genetically Engineered Food and Agriculture” prepared for non-governmental organization (NGO) groups EcoSouthWest and ANPED (The Northern Alliance for Sustainability), Prof. Atanassov is the “linchpin” in Bulgaria’s GE seed activities. The Institute for Genetic Engineering plays a key role in the granting of permits to companies like Monsanto for the release of GE seeds. Meanwhile, Prof. Atanassov has also been involved in the preparation of a new draft bill on GE organisms.

Resistance: In 2000, a coalition of NGOs, including EcoSouthWest and ANPED, launched a campaign to increase public awareness of GE foods and crops in Bulgaria. Part of the campaign included the release of the EcoSouthWest/ANPED report in May 2000. Within a month of releasing the report, the head of the parliamentary Environment Committee, Mr. Toshev, called for a moratorium on the commercialization of GE organisms. The Committee rejected the proposal because it would confirm that Bulgarian farmers were already growing GE crops commercially. While the Committee did agree to cut all government funding for research and development of GE tobacco and vines (important agricultural exports for Bulgaria), no action was taken on the distribution and release of GE corn seeds.

Latin America

Monsanto is gaining more and more ground in Latin America. Argentina is the second largest producer of GE crops in the world. Now Monsanto is focused on Brazil, a major agricultural producer, with soybeans being a main crop. Seeing the economic potential, while trying to gain public confidence after negative publicity of genetic contamination of native Mexican corn varieties by Monsanto’s RR and Bt corn, which are illegal in Mexico, Monsanto wants Brazil to permanently legalize its GE seeds.

Brazil

RR soybean push: Brazil is the world’s second largest soybean producer and exporter. In 1998, Monsanto applied for approval of its RR soybeans. Approval was granted from the National Biosafety Committee (Comissão Técnica Nacional de Biossegurança – CNTBio) that same year. In response, Greenpeace and the Institute for Consumer Protection (IDEC) went to court to challenge the legal authority of the CTNBio in court. The courts decided in favour of Greenpeace and IDEC, finding that, according the Law of Biosecurity, the Ministries of Health, the Environment and Agriculture are responsible for approving Roundup Ready soybeans not the CTNBio. The courts ruled that the cultivation of GE crops be suspended until an environmental impact study is conducted. Neither Monsanto nor the ruling governments have carried out such a study. Monsanto has continued to pursue approval.

In December 2001, Monsanto established a \$350 million chemical plant in Sao Paulo that produces components for the Roundup herbicide. The government of Fernando Henrique Cardoso (President of Brazil at the time) provided a low-interest loan of \$250 million to Monsanto for the construction of the plant¹⁰. The establishment of the plant

was part of Monsanto's strategy to realign some of its international agrochemical and seed production to Brazil. Monsanto also launched an extensive public relations campaign, holding seminars for media, and others who might "form public opinion," as well as lobbied government representatives. In March 2003, Frank AtLee, chairman, and then interim CEO of Monsanto, went to Brazil to try to lobby the government on the so-called benefits of GE crops¹¹.

In September 2003 Vice President of Brazil José Alencar (of the new government under Luis Inacio Lula da Silva, leader of the labour party) signed a decree to allow certain farmers - those who have already been growing smuggled RR soybean seed - to plant RR soybeans for one growing season. Farmers who plant the seeds must sign an agreement with the government saying they will take financial responsibility for any environmental damage that results from planting GE soy. As well, farmers are not allowed to sell seed saved from RR crops. According to a June 2003 article by Via Campesina in the weekly newspaper *Brasil de Fato*, the GE soy will be commercialized until January 31, 2004 after which time the entire stock will be conventional¹².

Smuggled seed: Large numbers of small farmers in Rio Grande do Sul in southern Brazil have been growing RR soybeans from smuggled seed, believed to have come from Argentina and Paraguay. Estimates of how much of Brazil's soybean crops are planted with RR seed vary from 10% to 30%. In Rio Grande do Sul, the estimate is as high as 70%. While the new decree lets farmers grow RR soybeans legally, some pro-biotech groups, like the American Soybean Association, have complained that Brazilian growers have not been paying for patented seed technology, and that has given them a 'competitive advantage' over U.S. farmers. At the same time, Monsanto has begun to implement a royalty collection system, in which the corporation can collect royalties from local exporters for RR soybeans now that the seed is legalized.¹³

Resistance: In June 2003 members of the landless workers movement in Brazil (MST) invaded a farm owned by Monsanto in the central state of Goias. It is the third protest of this kind against Monsanto property this year and the company has urged the government to take back the land, warning that repeated invasions "damage the image of the country". The MST says the centre is being used to grow and stockpile seeds, ready to flood the market if GE is legalised in Brazil. Brazil's new Workers' Party government has expressed sympathy with the aims of the huge MST, but the two have clashed over the pace of agrarian reforms. Monsanto claims that these kind of invasions compromise scientific 'progress' in Brazil. MST stated the objective of the occupation was "to expel" Monsanto from the state and convert the 43 hectares (106 acre) farm to organic production.

The latest decree signed by Alencar sparked strong responses. Attorney General Claudio Fontelles filed a request asking the Supreme Court to overrule the decree, claiming that the planting of RR soybeans without an environmental impact study is unconstitutional. The National Farm Workers Confederation filed a similar suit using the same argument, followed by the Green Party.

Monsanto Research

University Ties

California Polytechnic State University: In 2002 Monsanto provided \$450,000 over 5 years to create the Dairy Cattle Applied Research and Technology program to assess the impacts of new techniques and technologies, including biotech, on “high-producing, high-gene-type commercial dairy herds.”¹⁴

Furman University: political science department received \$100,000 from Monsanto (1999)

Harvard University: Dr. Jeffrey Sachs, Director of the Center for International Development at Harvard sits on Monsanto’s Biotechnology Advisory Council

Iowa State University: ISU’s College of Agriculture’s Jon J. Tollefson and Jim Oleson received a \$10,000 grant from Monsanto for research entitled “Flight of Male and Virgin Female Western Corn Rootworm Adults.” Walter R. Fehr, the Charles F. Curtiss Distinguished Professor in Agriculture at ISU and director of the state’s Office of Biotechnology was named the 2002 recipient of the Monsanto crop Science Distinguished Career Award¹⁵. Monsanto also gave two of its ‘Monsanto Diversity Graduate Research Fellowships’ to two ISU plant genetics students in 2002. These are one-year fellowships that help “outstanding minority students develop research careers in the plant sciences.”¹⁶

John Hopkins University: Dr. Lynn Goldman, pediatrician and professor at the Bloomberg School of Public Health, principal investigator for the Children’s Health component of Pew Environmental Health Commission and formerly administrator with the U.S. EPA, Office of Prevention, Pesticides and Toxic Substances sits on Monsanto’s Biotechnology Advisory Council.

Kansas State University: forming a spin-off/start-up corporation to sell GE soybean seeds as part of a deal with Monsanto. The non-profit company will be called Wildcat Genetics. Wildcat will sell seeds in which Monsanto’s RR technology is applied to soybean varieties developed by the university. The University hopes to gain a 20% market share in Kansas with its new seed.¹⁷

Michigan State University: runs the Agricultural Biotechnology Support Project (ABSP).

In December 2000, Monsanto launched a multi-year project with the Tata Energy Research Institute (TERI) a non-profit Indian research institute, and ABSP to develop varieties of Vitamin A mustard, aka “golden mustard”. Michael Allen, Animal Science Professor, received an \$80,000 grant from Monsanto in February 1999.

North Carolina State University: associate professor Dominique Robertson created a faster gene-silencing technique. Monsanto is a sponsor of the research, and has an option to the technology, while NCSU received a patent for the technology in April 1999.

North Dakota State University: Monsanto has GE wheat trials at some North Dakota State University field stations. Exact locations have not been disclosed¹⁸. These field trials are part of agreements between NDSU and Monsanto to commercialize products using Monsanto technologies. NDSU has established a licensing program called “Roughrider Genetics,” a trademark brand name established for the marketing of licensed or proprietary varieties own and managed by the NDSU Research Foundation.¹⁹

Oregon State University: In November 2000, OSU announced that Monsanto had donated wheat germplasm and seed stocks (from non-GE varieties) to the university’s wheat breeding program. The donation represented an investment of several million dollars in breeding and development research. This represented a continuation of earlier collaboration between OSU and HybriTech International, a subsidiary of Monsanto. OSU is not to provide any seed or germplasm from the donated materials to any of Monsanto’s commercial competitors. Stocks will be shared with other breeding programs at Washington State University, University of Idaho and the United States Department of Agriculture.²⁰ OSU also has an agreement with Monsanto, possibly part of the donation, to develop GE wheat²¹. The Tree Genetic Engineering Research Cooperative is based at OSU. One of the experiments occurring at the Cooperative is engineering Monsanto’s RR gene into the cells of polar trees. Monsanto, Shell and the US Department of Energy also funded research at OSU on the prevention of flowering in black cottonwood²² for the purpose of speeding up breeding and research. Several hundred lines of GE trees containing various types of genes that are expected to affect flowering have been created and are being grown in field tests²³. In mid-March 2001, concerned OSU students and alumni targeted three GE test sites where Poplar and Cottonwood trees are being grown. 90 % of the trees were ring-barked or cut down.²⁴

Purdue University, University of Illinois at Urbana-Champaign, University of Missouri-Columbia and Washington University: – The Danforth Center was established by Monsanto, The Missouri Botanical Garden, Purdue University, University of Illinois at Urbana-Champaign, University of Missouri-Columbia and Washington University in St. Louis. The Monsanto Fund (Monsanto’s charitable component) contributed an initial \$40 million, and pledged another \$30 million from 1998-2002 for the Center. Monsanto also donated land for the center – a 40.3-acre tract adjacent to its St. Louis campus valued at \$11.4 million. Meanwhile, the state of Missouri provided its largest allocation ever of economic development tax credits –\$25 million. Hugh Grant, Monsanto’s CEO, joined the Center’s Board of Directors in June 2003. Part of the Danforth Center’s mission is to facilitate the development and transferring of technologies for countries in the global South. The Monsanto Fund is funding research to the Danforth Center’s efforts to develop a virus-resistant cassava. The Danforth Center has offered a ‘royalty-free license’ to enable technologies used in agricultural biotechnology to increase production and quality of cassava.²⁵

South Dakota State University: In 2000 SDSU and Monsanto entered into an agreement under which university researchers were to incorporate the RR gene into soybean varieties developed to suit South Dakota growing conditions. This was the first time Monsanto had used a land-grant college as a way to make its technology available to farmers.²⁶

Southeast Missouri State University: Two faculty members of the Department of Agriculture are former employees of Monsanto. Dr. Donn Beighley, who specializes in rice and soybean breeding and wheat testing, once worked as a project leader and assistant research director for Monsanto's Hartz Seed Co. Dr. William Ellis, who specializes in swine and beef production management and agribusiness, also worked for Monsanto.²⁷

University of California: Ann Veneman, U.S. Secretary of Agriculture, is a former board of director at Calgene (a subsidiary of Monsanto), and currently serves on the UC Davis College of Agricultural and Environmental Sciences Dean's Advisory Council, the Advisory Council for the U.C. Berkeley College of Natural Resources.

University of Florida: In 1999 the Vasil-Monsanto Endowed Professorship was established at UF in honour of Indra Vasil. Vasil is a graduate research professor emeritus with UF's Institute of Food and Agricultural Sciences. He is a staunch proponent of biotech and deregulation. In response to the opposition to GE crops/foods he stated "*The biotechnology community - which includes academia, industry and the regulatory agencies - has been patient and on the defensive for too long...It is time now to shift the debate from unnecessary regulation to deregulation.*"²⁸ Vasil has developed a GE wheat variety designed to produce higher levels of gluten, which has been field-tested in Arizona.²⁹ Approximately 50 field trials of Monsanto's GE crops have been run through UF.³⁰ Monsanto also funded research at UF on its rBGH product Posilac. Researchers working under this funding withheld information from a Florida dairy farmer whose herds became sick after starting rBGH treatment that other dairy herds were suffering similar problems.³¹

University of Manitoba: in 1999 it was announced that Monsanto would establish its \$10 million Crop Technology Centre on U of M's Fort Garry campus. The government of Manitoba would provide \$1 million. The Centre was being established to build on work between Monsanto and Agriculture and Agri-Food Canada's (AAFC) Cereal Research Centre at the U of M.³² In 2003, open air field trials of Monsanto's Roundup Ready wheat took place at AAFC's Cereal Research Centre on the University of Manitoba campus. (Roundup Ready wheat was being developed in collaboration with AAFC. AAFC paid for many of the development costs).

University of Missouri at Columbia (MU) - Monsanto and the Monsanto Fund have donated \$1.9 million for equipment at the Life Sciences Center, planned to open in August 2003 at MU. Construction began in December 2001 after MU received commitments for the \$60 million required for the project. Much of the funding is coming from the federal government and state governments. The National Aeronautics and Space Administration provided \$29 million, the U.S. Department of Health and Human

Services provided \$1 million, while the state of Missouri provided just over \$30 million. The auditorium at the Life Sciences Center will be named after Monsanto. Monsanto has also funded the Monsanto Swine Genome Project (bioinformatics project) at MU. The project also received funding from the National Institutes of Health. It focuses on basic research in animal genomics with the ultimate goal to identify economically superior animals, improve quality, efficiency and profitability of animal production.

University of Nebraska: Michael Fromm, current director and agronomy professor at the university's Center for Biotechnology led a group at Monsanto that developed RR corn and Bt corn.

University of Pennsylvania: School of Medicine's Center for Bioethics received funding from Monsanto (along with Dow and DuPont) to create a report called 'Developing an Ethics Code for the Biotech Industry.' (See www.med.upenn.edu/bioethic/research.shtml).

University of Richmond, Virginia: has a research collaboration with Monsanto. Research team led by Dr. Steve Slater from Cereon Genomics, a subsidiary of Monsanto based in Cambridge, MA, collaborated with Dr. Brad Goodner and his research team from the university of Richmond. The team was working on figuring out the genome sequence for *Agrobacterium tumefaciens*, which can naturally transfer DNA to plant cells.

University of Toronto: Dr. Paul Thompson, Professor of Biology and Philosophy sits on Monsanto's Biotechnology Advisory Council.

University of Washington: Monsanto owns a draft sequence of the rice genome. Research was conducted at the University of Washington under a major contract financed by Monsanto. The rice genome is significant for Monsanto since rice is known as an ideal species for learning about the traits (e.g. yield, disease resistance, etc.) of all grass plants, including wheat and corn.

Monsanto has agreed to provide access to its information on the rice genome to member countries of the International Rice Genome Sequencing Project (IRGSP). Member countries include Japan, U.S., China, Taiwan, Korea, India, Thailand, France, Brazil, and the United Kingdom. IRGSP was established in 1997 to gather information about the rice genome.

Washington University: Monsanto has a long-standing relationship with Washington University, focusing on biomedical research. Monsanto has contributed more than \$100 million of research funding towards the Biomedical Research Agreement. The Monsanto Lab was established at the University in 1965. It was the first building on the Hilltop Campus to be named after a corporation. (www.wustl.edu/tour/hilltop/monsanto.html)

Washington University, Saint Louis University, University of Missouri-St. Louis, and Southern Illinois University at Edwardsville: Missouri Botanical Garden (MBG) offers a graduate studies program in systematic botany in cooperation with Washington University, Saint Louis University, University of Missouri-St. Louis, and Southern Illinois University at Edwardsville. MBG's research division is the Monsanto Center, which includes a herbarium containing over 5 million plant specimens and a research library.

It has a staff of more than 150 research scientists, associates and graduate students. It is a facility worth \$19 million and covers 78,000 square feet. MBG botanists and collaborators collect and 124,000 new plant specimens from nearly every continent to the herbarium annually. Monsanto provided \$3,000,000 to the development of the building. The Monsanto Center conducts basic research that is geared for serving the biotech industry.

The International Service for the Acquisition of Ag Biotech

The ISAAA is a group established specifically to promote biotechnology and create partnerships between research institutes in the South and companies of the North³³. The ISAAA operates in twelve countries: Kenya; Egypt; Zimbabwe; Indonesia; Malaysia; the Philippines; Thailand; Argentina; Brazil; Costa Rica; and Mexico.³⁴ ISAAA is financed by such corporations as Bayer, DuPont, Monsanto, Syngenta, as well as institutions like the World Bank, the Rockefeller Foundation (two of whom's board of trustees are with the World Bank) and the United States Agency for International Development (USAID). Monsanto has partnerships with institutions in Kenya, Mexico and Thailand through ISAAA:

Kenya: Monsanto, the Kenya Agricultural Research Institute, USAID's Agricultural Biotechnology Support Project (led by Michigan State University) and ISAAA are developing GE sweet potatoes resistant to the sweet potato feathery mottle virus. Monsanto has also contributed roughly \$2 million towards the development of GE virus resistant sweet potato at the University of Missouri. KARI will receive the GE potato seed as a donation from the partnership. First field trials of virus-resistant sweet potatoes were completed in 2001.³⁵

Mexico: In 1991, ISAAA facilitated a partnership between Monsanto and the Mexican government's Center for Advanced Studies (CINVESTAV) located in Irapuato for the development of GE virus resistant potatoes using local varieties. The Rockefeller Foundation is the main funder for this project. Two CINVESTAV scientists have worked with Monsanto to learn how to genetically engineer virus resistance in local potato varieties. Monsanto has granted CINVESTAV rights to use its virus resistant technology in certain varieties of potatoes. The research phases of this project are complete and CINVESTAV is now working on getting the GE potato varieties approved and distributed.

Thailand: Monsanto, along with Syngenta, is funding GE papaya research, including field trials, in Thailand. In March 1998, ISAAA established the Papaya Biotechnology Regional Network for Southeast Asia for the purpose of developing GE papaya in Thailand, Malaysia, the Philippines, Vietnam and Indonesia. Monsanto and Syngenta provided funding for the Network. Other members of the Network include the National Center of Genetic Engineering and Biotechnology (BIOTEC), PGEU and Kasetsart University in Thailand and MARD in Malaysia. ISAAA plans to work out commercial licensing arrangements should GE papaya varieties make to the commercialization stage.

Chemical Contamination

PCB Contamination

Between the mid-1930s and early 1970s more than 100 million pounds of PCBs from a Monsanto chemical plant (Monsanto's chemical business, not including its agrochemicals, was divested as Solutia in 1997) were discharged directly into waterways and soils in Calhoun county Alabama. As a result, residents of Anniston have and continue to suffer from cancer, neurological problems, liver problems, skin disorders, learning disabilities and cerebral palsy. Documents show that Monsanto was dumping PCB waste at the time, sometimes more than 110 kg per day into two large unlined landfill sites near residents' homes. The nearby neighbourhoods have historically been low-income and predominantly inhabited by African Americans. The US EPA ignored the problem.

Monsanto knew as early as the 1950s that PCBs were toxic, but hid the evidence from residents. In 1970, Monsanto offered to buy hogs from local resident Ruth Mims. Mims' hogs, unbeknownst to her at the time, had tested 90,000 times the legal limit for PCBs. In her testimony to a jury she said she used to eat the hogs. Many of her neighbours also fished in the area's two creeks which were contaminated with PCBs, lead and mercury. Monsanto knew these creeks were toxic since 1966 when a scientist hired by the company put 25 healthy fish into Snow Creek and watched them all die within 4 minutes.

Several lawsuits representing thousands of plaintiffs have been filed against Monsanto. In August 2003, Solutia and Monsanto agreed to pay a combined \$600 million to settle claims over PCB contamination made by about 20,000 Alabama residents. It is said that the settlement is likely to ease Wall Street's concerns about Monsanto. Solutia has spent over \$50 million cleaning a plant and surrounding area in Anniston.

Agent Orange in Vietnam

From 1962 to 1970, the U.S. military sprayed 72 million litres of herbicides, mostly Agent Orange, in Vietnam. Monsanto was a major producer of Agent Orange, which is a lethal herbicide that the U.S. used as a defoliant in Vietnam as part of the U.S. military strategy. More than one million Vietnamese were exposed and over 100,000 Americans and allied troops. U.S. and Vietnamese soldiers continue to suffer from effects of Agent Orange. Depression is a major side effect, which has led to attempted suicide in some victims, while memory lapse is another. U.S. veterans sued Monsanto after the end of the war on Vietnam. As a result, in an out of court settlement, Monsanto paid approximately \$80 million in damages to some veterans. Vietnamese veterans and victims have received nothing.

In 1969 the US National Institutes of Health reported that Agent Orange causes malformations and stillbirths in mice. In 1970, the use of Agent Orange was suspended around lakes, recreation areas, homes and crops intended for human consumption. In 1978 the EPA suspended spraying Agent Orange in national forests due to increases in miscarriages in women living near forests that had been sprayed.

Roundup in Colombia

Roundup has been used to destroy drug crops in Colombia since 1978. The U.S. government has bought Roundup from Monsanto and supplied it to Colombia's military-backed government, in their efforts to destroy drug crops in the country. In 2000 alone approximately 145,750 gallons of Roundup were sprayed over 53,000 hectares in Colombia.

The military anti-drug/neoliberalization campaign known as Plan Colombia – a \$7.5 billion campaign established in 1999 that aims to cut Colombian drug production by half in six years – continues to use Roundup. The U.S. backs this campaign, providing \$1.3 billion in 'aid.' The Colombian army began aerial spraying – that is spraying from airplanes and helicopters – of Roundup in 2001, which are destroying coca and food crops.

The sprayings have been non-selective and have fallen onto towns and farmhouses, causing people to suffer fevers and deaths of cows and fish. Farmers have lost hundreds of hectares of food crops.³⁶

Child Labour in India

17,000 children (mostly between the ages of 6 and 14) work for Monsanto at its Indian subsidiary Mahyco in cottonseed production. They work ten to thirteen hours per day, receive no education, earn less than 20 Rs. (USD 0.42) per day and are exposed to toxic pesticides like Endosulphan.

Cottonseed production in India is notorious for involving exploitative child labour, largely because cottonseed companies set a low unilaterally fixed price at which they buy, forcing farmers to seek out cheap labour. Unilever, Syngenta and ProAgro also use the same exploitative measures in their cottonseed production in India. About 90 percent of the children employed in cottonseed farms are in debt bondage, that is they are recruited by the farmers on long-term contract basis by giving loans/advances to their parents. The majority of seed farmers belong to upper castes, while the families or working children are mostly (about 87 percent) from lower castes.³⁷

Campaigns Against Monsanto

Boycott Monsanto, Resistance and Solidarity Against Agrochemical TNCs (RESIST!), The Philippines: RESIST! is the broadest and largest anti-GE alliance in the Philippines. It includes Philippine-based farmers' organizations, non-governmental organizations (NGOs), scientists, health workers, and academics. In June 2003 RESIST! launched a national boycott campaign against Monsanto. The campaign, announced at a press conference in Quezon City, coincided with the release of *"Selling Food, Health, Hope: The Real Story Behind Monsanto Corporation."* It is an in-depth report on Monsanto by University of Washington, PhD candidate and MASIPAG* researcher/writer Sarah Wright. The campaign calls for farmers to boycott: Roundup herbicides; Harness herbicides (corn); Machete herbicides (rice); Asgrow seeds; DEKALB seeds; Hartz seeds; Yieldgard corn; Bollgard cotton; Ingard corn and Roundup Ready corn. Dr. Giovanni Tapang, President of Advocates of Science and Technology for the People and RESIST Convenor said, "We are urging farmers, scientists, environmentalists and individuals to join us in our struggle against Monsanto and agrochemical TNCs (transnational corporations). Monsanto must answer and pay for its criminal and civil liabilities against the peoples of the world." RESIST!, which is the Philippine counterpart of the International Alliance Against Agrochemical TNCs, has also announced that an international campaign against Monsanto is being planned.

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Class action lawsuit against Monsanto and Bayer, Saskatchewan Organic Directorate, Canada: The Saskatchewan Organic Directorate (SOD), through its Organic Agriculture Protection Fund, has launched a class action lawsuit against Monsanto and Bayer (previously Aventis CropScience) on behalf of over 1,000 of the province's organic canola farmers. The lawsuit is being filed because Monsanto and Bayer CropScience's GE canola has polluted organic farmers' fields. As a result of the pollution it is impossible for the farmers to grow certified organic canola. The preliminary economic analysis by SOD shows that losses caused by the introduction of GE canola could be well over \$14 million. The farmers are seeking compensation from the two corporations and also want an injunction to prevent Monsanto from getting approval in Canada for its GE wheat. Wheat is an even larger market than canola for Canadian farmers and many of the 70 countries to which Canada exports wheat have already stated that they will refuse Roundup Ready wheat or any other wheat that has been contaminated by GE wheat. According to a study from the University of Saskatchewan (a key institution in the development of agro biotech in Canada) growing GE wheat could cost Canadian farmers \$185 million per year in lost sales³⁸. SOD believes that if GE wheat were introduced, Saskatchewan organic

farmers would not be able to stay in business. SOD is seeking financial support for its lawsuit.

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Invasion of Monsanto farms, Landless Workers' Movement (MST - Movimento dos Trabalhadores Rurais Sem Terra), Brazil: MST is the largest social movement in Latin America involving hundreds of thousands of peasants. MST responds to the struggles of landless peasants through education and action. The MST has created 60 food cooperatives and small agricultural industries, established a literacy program involving 600 educators who work with adults and adolescents, and monitors 1,000 primary schools in their settlements (this includes 2,000 working with approximately 50,000 children). MST is perhaps best known for its takeover of unused land. Presently over 250,000 families have won land titles to over 15 million acres as a result of MST land takeovers. Members of the MST have invaded three farms owned by Monsanto in Brazil in 2003. In June 2003, as many as 2,000 people invaded a 307-hectare farm in Santa Helena de Goias. The MST believes the centre is used to grow and stockpile seeds, ready to flood the market upon legalization of GE in Brazil. "It's an illegal centre," said one MST leader, Luiz Afonso Arantes. "They might be producing seeds just for research, but they are also planting with the intention of reproducing," Agencia Folha quoted him as saying. The MST has expressed fears that legalization of GE in Brazil will mean that big growers will force small farmers out of business. The MST encourages involvement and support for its movement through financial donations, assistance in making background information and current news about the MST accessible for the English speaking public and network building in order to respond to the highest priority political and human rights requests.

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Operation Cremate Monsanto, Karnataka State Farmers' Association (KRRS, Karnataka Rajya Ryota Sangha): KRRS includes approximately 10 million members. It aims for social change at all levels and believes that the autonomy and freedom of the village should be based on the autonomy and freedom of its individual members. In 1998, KRRS launched the 'Operation Cremate Monsanto' campaign. It has spread

throughout grassroots groups in India. As part of the campaign, Monsanto test fields have been torn up and burned in different states (including Karnataka and Andhra Pradesh). In September 2003, more than 40 farmers damaged parts of Monsanto's former Bangalore facility, which was located in India's top science facility, the Indian Institute of Science. Protestors were demanding that Monsanto close down its operations in India. 15 farmers were arrested after the action. Professor MD Nanjundaswamy, a leader in KRRS, told reporters that the attack was a warning to Monsanto to leave India.

KRRS

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Monsanto Quit India: launched in 1998, symbolically on the 9th of August – the anniversary of the day that Gandhi told the British to 'Quit India.' The campaign was backed by a coalition of non-governmental organizations (NGOs), including the Research Foundation for Science, Technology and Ecology. It was launched in response to Monsanto's purchase of Mahyco, the largest Indian seed company, the takeover by Monsanto of a lab in India's premier research institute, the Indian Institute of Science in Bangalore, the free import of GE soybeans into India and the illegal field testing of Monsanto's Bollgard cotton. Thousands of postcards were distributed to NGOs, community groups and farmers across India. Within four months of the campaign launch, more than 10,000 people signed and sent the postcards to Monsanto's headquarters in St. Louis, Missouri.

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Appeal of judgement, Percy Schmeiser, Saskatchewan Canada: In 1998, Monsanto filed a lawsuit against Saskatchewan farmer Percy Schmeiser, alleging that he *grew RR canola without a license*. Monsanto wanted Schmeiser to pay the corporation the same fee required of those growing GE crops under contract. Schmeiser refused, saying that his crops must have become contaminated from GE canola grown nearby. In September 2002, the Federal Court ruled that Schmeiser did violate Monsanto's patent on its GE canola seeds. Schmeiser fought the court's ruling. In May 2003, Schmeiser and his lawyers were granted the right to appeal and will be allowed to take their appeal to the Supreme Court. Schmeiser insists he never deliberately planted

Monsanto seeds and says that seeds can fly for miles, as far as from North Dakota to northern Saskatchewan. The Federal Court did not disagree that the Monsanto's seeds may have blown onto Schmeiser's property, but said it was Schmeiser's obligation to destroy the seeds. Mr Schmeiser's lawyers will argue in the Supreme Court that companies have no right to patent an entire plant*. A coalition of non-governmental organizations, led by the Council of Canadians, and including the Sierra Club of Canada, Canada's National Farmers' Union, the Action Group on Erosion, Technology and Concentration, the International Center for Technology Assessment (Washington, DC) and the Research Foundation for Science, Technology and Ecology (New Delhi, India) applied to intervene in Schmeiser's case. The outcome of the case could have major implications not just for GE crops, but also for the patenting of genetic techniques in many other areas. Schmeiser is seeking financial support for his case. Funds can be sent to:

"Fight Genetically Altered Food Fund Inc."

Box 3743, Humboldt SK Canada S0K 2A0

or visit: www.percyschmeiser.com for more information on his case and how to donate online

Antitrust Case Against Monsanto, U.S. Farmers: In 1999, a suit was filed on behalf of two US farmers that alleges that Monsanto, Bayer, Syngenta and Pioneer, formed a cartel to control the prices of new GE soybean and corn seeds. The legal consortium that filed the suit is headed by, Cohen, Milstein, Hausfeld and Toll, a New York law firm. The consortium has been working with environment and development groups, including the National Family Farm Coalition and the Foundation on Economic Trends. The companies have denied the charges. The farmers argue that they have lost revenue because European countries rejected Monsanto's GE products and boycotted all US corn and soy as a result. Sippel dismissed that claim, but is allowing the antitrust portion of the case to proceed. In response to Sippel's ruling, the Farmer-to-Farmer Campaign on Genetic Engineering and the National Family Farm Coalition stated that they are pleased with the Court's decision to proceed to trial on the Plaintiff's claims alleging antitrust violations against Monsanto and the other corporations. However, they are disappointed with the portion of the decision that dismissed claims relating to the economic injury to farmers caused by GE crops. They state, that GE crops have resulted in lower yields, higher costs of production and loss of markets and farmers should receive compensation for the economic harm they have suffered as a result.

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More Resources

Profiles and reports

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