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The Monsanto Company: Quest for Sustainability (B)

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1998: Trouble Brewing

The summer of 1998 proved to be critical to Monsanto's life sciences strategy as events forced the agbiotech debate to the forefront of public concern, particularly in Europe. Monsanto had planned some events to communicate the virtues of genetically modified (GM) crops and to operationalize the firm's sustainability goals. Other incidents surfaced independently.

The Monsanto Media Campaign

Monsanto's European ad campaign, criticized from the outset by rival European agbiotech firms for its probiotech bias, drew the ire of an already suspicious public. The Prince of Wales entered the debate with a statement in the London *Daily Telegraph* that crop biotechnology took humankind into realms that belonged to God alone. In Europe, the Rural Agriculture Foundation International (RAFT) reported that the Gaia Foundation, Action-Aid, and Greenpeace managed to draw more attention to Africa's opposition to the campaign than Monsanto received from its own publicity.[1]

This case was prepared by Erik Simanis under the supervision of Professor Stuart Hart of the Kenan-Flagler Business School, University of North Carolina at Chapel Hill. This case is intended to serve as a basis for class discussion rather than to illustrate the effective or ineffective handling of an administrative situation. Financial support was provided by the V. Kann Rasmussen Foundation.

The Grameen-Monsanto Joint Venture

The Grameen-Monsanto Technology Center, Monsanto's flagship developing-country partnership that was unveiled at the World Microcredit Summit in June 1998, never reached actualization. Upon returning to Bangladesh at the summit's conclusion, Grameen founder Mohammed Yunus was overwhelmed by hundreds of e-mail messages from nongovernmental organizations (NGOs) worldwide claiming that his organization had become "a partner in the destruction of biodiversity and farmers' livelihoods"[2] (see *Exhibit 1*). The deluge of criticism and the threat of cuts in financial support forced Yunus to withdraw from the venture. The media and NGOs reported the partnership's failure as a rejection of Monsanto's biotech and industrial agriculture products.

Monsanto and the Terminator Patent

During the summer, NGOs revealed that Delta & Pine Land, Monsanto's newly announced acquisition target (the merger was awaiting Justice Department approval), had been issued a joint patent with the U.S. Department of Agriculture for a seed sterilization technology. Dubbed the "Technology Protection System" (TPS), it would render a crop's seeds sterile, thus preventing farmers from "pirating" a firm's genetic technology by merely replanting seed. RAFI coined the technology "the Terminator."

Although TPS had yet to reach commercialization, the NGO community reacted swiftly. In an October letter-writing campaign organized by RAFI, more than 2,600 letters from 58 countries were sent to U.S. Secretary of Agriculture Dan Glickman demanding that the Terminator be banned. Shortly thereafter, the Consultative Group on International Agriculture Research (CGIAR), the world's largest international agricultural research network and provider of seed-breeding stock for 70 percent of the Third World's rice and wheat crop, vowed not to use the sterilization technology. Operation Cremation Monsanto was initiated in India, in which farmers burned fields containing Monsanto's trial crops and stormed its offices in Hyderabad. The government of the State of Andhra Pradesh ordered Monsanto's local subsidiary, Mahyco Monsanto Biotech, to stop all field trials in seven districts.[3] The Indian Minister of Agriculture announced a ban on the import of any seed carrying the Terminator, and a Brazilian state followed suit. As reported by RAFI, "debates over Terminator erupted from the Philippines to the Irish Parliament."[4]

Monsanto continued to support the TPS as an important tool for protecting its intellectual property.

The GM Potato Controversy

In August 1998, Dr. Arpad Pusztai of the Rowett Institute for Agriculture in Aberdeen, Scotland, announced on television that rats fed GM potatoes suffered damage to their immune systems. The scientific community concluded that the study was seriously flawed and strongly criticized Pusztai. He was subsequently forced to resign from the Institute.

Government Actions

By the end of the summer, several European governments had taken steps to slow the spread of genetically modified organisms (GMOs). In July 1998, France declared a moratorium on growing genetically modified crops (beet and rape) that had wild relatives in Europe. A month later, France's highest administrative court suspended authorization to grow Novartis's modified maize. Greece, meanwhile, banned the import of genetically modified rapeseed, while the United Kingdom announced a de facto 3-year moratorium on genetically engineered insect-resistant plants. Austria and Luxembourg banned the sale of GM corn.

Monsanto and AHP: A Merger Falls Apart

Soon thereafter, Monsanto's problems extended beyond public opinion. On October 13, 1998, Monsanto and American Home Products (AHP) announced the termination of their proposed merger, triggering a 32.4 percent

fall in Monsanto's stock price within a 2-day period.[5] Analysts speculated that the merger collapsed because of the awkwardness of the co-chairmanship arrangement and the CEOs' inability to "work out the egoism and politics."[6] Two weeks later, Monsanto revealed a plan to fund its seed company acquisitions through a combination of financing transactions, cost reductions, and divestitures. The financial transactions would include issuing approximately $1 billion of common stock, $700 million of adjustable conversion-rate equity security units, and $2.5 billion of long-term, unsecured debt. The restructuring was expected to cut 700-1,000 jobs, several at executive levels. In addition, divestitures would eliminate an additional 1,300-1,500 jobs.

1999: The Collapse of Support for GMOs

The year began with a call by the European Parliament to label GM crops and foods, a requirement that Monsanto continued to oppose. Yet the agbiotech opposition would soon gain momentum with the release of new scientific evidence.

Butterflies and GM Pollen

In May 1999, the respected journal *Nature* published a study that provided clear evidence that pollen from transgenic corn (*Bt* corn) was harmful to Monarch caterpillars. The article appeared to bolster the widely publicized position of the British Medical Association, Britain's largest medical organization, which two weeks earlier had called for an open-ended moratorium on the commercial planting of GM crops.

A research team of four Cornell scientists fed Monarch caterpillars, the larval stage of the butterfly, leaves of milkweed which had been dusted with either *Bt* corn pollen or regular corn pollen (a control group was fed milkweed without any pollen dust). Milkweed, commonly found growing along cornfields throughout the United States, was the sole source of food. Within four days, half the caterpillars fed *Bt* corn pollen died but all those fed milkweed with regular corn pollen or no pollen survived.

The biotech industry, as well as some ecologists and environmental scientists, cautioned that the laboratory conditions were a poor reflection of field conditions and that the timing of corn's pollination cycle may not coincide with the presence of the Monarch larvae. Monsanto and others also argued that the study did not account for the beneficial impact on the Monarch population of reduced pesticide applications made possible by the *Bt* crops. Although the article's authors themselves stated that their findings were preliminary and that it "would be inappropriate to draw any conclusions about the risk to monarch butterflies in the field,"[7] ecologists and scientists across the world issued cautionary statements, for example: "Nobody had considered this before. Should we be concerned? Yes"[8] and "You now have a novel means of distributing Bt toxins in the environment. This is a technology that's being promoted and we haven't really considered all the consequences."[9]

The NGO Swarm

Greenpeace, the Royal Society for the Protection of Birds, and other environmental organizations called for a moratorium on further GM plantings, using the Monarch butterfly study to suggest that GMOs posed unknown risks. Within days of the monarch butterfly story, Prince Charles launched a scathing criticism of GM products in an article in the U.K.'s *Daily Mail* and attacked the lack of independent scientific research. The National Federation of Women's Institute, representing more than 250,000 women throughout the United Kingdom, demanded that the government ban imports of GM foods until consumer safety and environmental concerns had been fully investigated. In July, antibiotech activists of the Genetic Engineering Network, clad in white decontamination suits, destroyed test plots of GM crops in Oxfordshire, England.

Major supermarket chains throughout Europe — including Safeway, Iceland, Tesco, Sainsbury, and Asda — banned GM foods from their shelves. Unilever, Nestle, Cadbury, and Northern Foods pledged to rid their products of GM ingredients as soon as possible. Gerber, the largest producer of baby food in the United States and a subsidiary of Novartis, decided to stop using genetically modified corn, soy, and other foods. Major grain processors Archer

Daniels Midland and Staley announced that they would no longer buy GM corn varieties that were not approved in Europe.

The Rockefeller Foundation, a long-standing supporter of plant biotechnology and ally in the biotech debate, publicly criticized Monsanto in June 1999 following a speech by foundation president Gordon Conway to Monsanto's board of directors. Emphasizing the critical role that biotechnology could play in alleviating global hunger, Conway blamed the backlash against the technology on Monsanto's haste in marketing its GM products. Among other actions, Conway advised Monsanto's directors to support labeling GM products and to disavow Terminator technologies.[10]

The EU Government Responds

On June 25, 1999, the European Union announced strict new controls on GM foods. According to German Minister Juergen Trittin, the agreement amounted to a "de facto halt on new GM approvals until a new law on licensing the products is up and running — probably in 2002."[11] The new measures included stricter risk assessments prior to licensing GM products, better labeling, the continued monitoring of GM foods once they are on the market, and a re-approval process for GM foods after 10 years.

GMOs: The Market Weighs In

In May 1999, Deutsche Banc Alex.Brown's report, "GMOs are Dead," cited the emergence of a two-tier grain market with GMO corn and soybeans at a discount to non-GMOs. A second report in July stated that European processors were paying a $1 per bushel premium for non-GMO products and that Archer Daniels Midland was paying an $0.18-per bushel premium for DuPont's STS soybeans, a non-GMO variety.[12]

By December 1999, Monsanto's stock price had plummeted. Morgan Stanley Dean Witter analyst Mark Witamuth stated that "the market seems to give no value to Monsanto's agbiotech business."[13] Yet Monsanto was not alone — other life sciences firms were also experiencing stock pressure. On December 7, industry giant Novartis and AstraZeneca announced that they would exit agbiotech by divesting their agricultural units to form a separate company to be named Syngenta. According to Sarah Landels, managing director of AgIndustries Research and Consulting, depressed agricultural commodity prices and GM's worsening reputation had contributed to a shift in strategies: "They thought there would be economies and synergies in R&D between ag and health care, but there haven't been as many cost savings as expected."[14]

GMOs: Preliminary Impact Studies

Agbiotech supporters found a measure of support in studies performed by the National Agricultural Statistics Service of the U.S. Department of Agriculture and the National Center for Food and Agricultural Policy on the initial impacts of GM crops on yields, pesticide usage, and farmer income. Among the key findings were:

- Bt Cotton: In 1998, use of Bt cotton reduced the number of insecticide treatments by a total of 5.3 million treatments. Yield increases resulting from reduced crop damage totaled 85 million pounds. The overall net benefit to cotton producers equaled $92 million.[15] The authors of the National Center for Food and Agricultural Policy study cautioned that other factors may have contributed to changes in the number of insecticide treatments and the amount of insecticides used, such as the presence of other pest eradication programs.
- GM Potatoes: The introduction of genetically transformed potato plants (to protect the plant against the Colorado potato beetle) did not have a major impact on production costs, insecticide use, or yields. Because growers had to apply insecticides for other insect pests during the season, the reduction in insecticide costs and applications was minor. The yields of the transformed and unimproved potatoes were approximately the same.[16]
- Bt Corn: The impact of Bt corn was mixed. In 1997, corn growers gained $72 million by planting Bt corn, but the following year they lost $26 million owing to a light infestation by the European corn borer

(ECB) and low corn prices. Given that insecticides historically had been used on only 2.5 percent of the total acreage to control the ECB (because of difficulties with timing insecticide applications and identifying an infestation), the authors estimated that only 2 million out of 80 million acres planted to Bt corn would otherwise have insecticides applied in 1998. In 1998, an additional 4.2 bushels per acre were produced on 14.4 million acres, resulting in an added 60 million bushels attributable to the Bt corn.[17]

Because environmental and economic conditions vary widely from year to year, the National Center for Food and Agriculture Policy study authors stated that an accurate assessment of the technology would require a decade or more of field usage.

Monsanto and the Life Sciences: The End of an Era

In early October 1999, Monsanto publicly announced that it would not commercialize Delta & Pine Land's Terminator or any other seed sterilization technology. A week later, Robert Shapiro, via a satellite link with Greenpeace's business conference in London, apologized for Monsanto's behavior throughout the GM controversy: "Our confidence in this technology (genetic engineering) and our enthusiasm for it has, I think, widely been seen — and understandably so — as condescension or indeed arrogance."[18]

A class action suit was filed against Monsanto in December 1999 in federal district court. It alleged that the company "didn't adequately test the safety of its genetically modified corn and soybean plants and that the St. Louis company's patented genes were giving it too much control over how staple crops were used."[19] Shortly thereafter, an Environmental Protection Agency science advisory panel began drafting new requirements to ensure that biotech crops would be environmentally safe. A GMO labeling bill was also introduced in Congress.

On December 19, 1999, directors of Pharmacia & Upjohn Inc. and The Monsanto Company approved a $27 billion merger designed to transform two midtier pharmaceutical businesses into a formidable contender in the rapidly consolidating drug industry. Monsanto's agricultural division would become a separate business headed by its own board, and an initial public offering of as much as 19.9 percent of the agricultural business would be conducted within two years of the merger. Pharmacia's chief executive Fred Hassan would run the combined company, and Shapiro was expected to become nonexecutive chairman and retire after 18 months.

In an ironic twist, on December 20, Monsanto withdrew its filing for approval of the proposed merger with Delta & Pine Land, citing irresolvable conflicts with the U.S. Department of Justice. Thus Monsanto had never even owned the Terminator, the technology that had ignited massive protests against the company and its GM products.

Robert Shapiro's vision of a life sciences company had officially come to an end, and the fate of agbiotechnology remained highly uncertain. Following three years of surging GM seed sales, the agbiotech industry expected sales to farmers to flatten or drop in 2000.[20] In an interview with the *Wall Street Journal*, Shapiro stated his belief that biotech would eventually be recognized as an important tool in feeding people and moving toward sustainable agriculture. He added, however, that in the meantime, "Democracy is a pretty robust process."[21]

Notes

[1] Rural Advancement Foundation International (RAFI). November 10, 1998. "Monsanto's 'Spectre' Dims." Online at: http://64.4.49.14/web/allnews-display.shtml?pfl=geno-list-en.param through http://www.rafi.org. Accessed January 2000.
[2] Personal communication from Vandana Shiva to Mohammad Yunus. Online at: http://www.corporatewatch.org.
[3] Alex Scott, "Monsanto Crop Trials Halted in India," *Chemical Week* (December 23, 1998): 16.
[4] RAFI, 1998, "Monsanto's 'Spectre' Dims."
[5] Alec Appelbaum, "A Merger Falls Apart," *Business News New Jersey* (October 19, 1998).
[6] Ibid.
[7] Agence-France Presse, "Researchers Backstep on Genetically Altered Corn's Effects on Butterflies," (June 11, 1999).
[8] Dr. Fred Gould, insect ecologist, North Carolina State University, quoted in Carol Kaesuk Yoon, "Pollen from Genetically Altered Corn Threatens Monarch Butterfly, Study Finds," *New York Times* (May 20, 1999).
[9] Dr. John Obrycki, entomologist, Iowa State University, quoted in Yoon, 1999, "Pollen from Genetically Altered Corn."
[10]From Gordon Conway's speech to Monsanto's board of directors, June 24, 1999. Online at: http://208.240.92.21/news/gmfood_sp.html (through http://www.rockfound.org). Accessed: February 2000.
[11] "EU Clamps Down on GM Foods," *Telegraph* (June 25, 1999). Online at: http://www.telegraph.co.uk. Accessed February 2000.
[12] "A Major Change in the Market's View of GMOs," Deutsche Banc (Alex.Brown) (July 12, 1999).
[13] Samuel K. Moore and Alex Scott, "'Biotech Battle' Waging a War for Public Approval," *Chemical Week* (December 15, 1999): 23.
[14] Ibid.
[15] Leonard P. Gianessi and Janet E. Carpenter, "Agricultural Biotechnology: Insect Control Benefits" (National Center for Food and Agriculture Policy, July 1999).
[16] Ibid.
[17] Ibid.
[18] Robert Shapiro. Address to Greenpeace Business Conference, October 6, 1999. Online at: http://www.monsanto.com. Accessed January 2000.
[19] Scott Kilman, "Monsanto Is Sued over Genetically Engineered Crops," *Wall Street Journal* (December 15, 1999).
[20] Scott Kilman and Thomas M. Burton, "Farm and Pharma: Monsanto Boss's Vision 'Life Sciences' Firm Now Confronts Reality," *Wall Street Journal* (December 21, 1999).
[21] Ibid.

Exhibit 1
E-mail to Professor Mohammad Yunus

Prof. Mohammad Yunus
4 Jul 98 President
Grameen Bank
Bangladesh
Email: yunus@citechco.net
Dear Prof. Yunus,

When a few decades ago, you gave a few hundred Takas from your pocket to rural women in Bangladesh who were in the grip of a famine, you started a movement called "the grameen bank" which used microcredit to enable women to use their skills, their knowledge, their resources to build local markets for their products, rejuvenate their livelihoods and hence improve their food entitlements.

When you announced your Joint Venture with Monsanto on June 25 in New York at the Microcredit Summit, you reversed that movement and took a step to betray the interests of the women you have served so far. The microcredit scheme linked to the Grameen Monsanto centre will create markets for Monsanto's products not the products based on the creativity of Bangladesh peasants. They will not build on the skills and knowledge and resources which women of Bangladesh have, they will wipe out their knowledge and resources and destroy their livelihoods and food security.

Monsanto's skills in agriculture are in the field of genetically engineered crops. These crops are designed to use more agrichemicals like Round-up which is a broad spectrum herbicide that kills anything green. Your microcredit venture with Monsanto will directly finance the destruction of the green vegetables that women collect from the fields. Round-up also has negative impacts on fish which provide 80 per cent of the animal protein in Bangladesh.

Initiatives on Sustainable Agriculture which are promoting agriculture without agrichemicals show an increase of 11 per cent in yields and 52 per cent in farm incomes when agrichemical use is stopped as a result of which fish can thrive in the fields and in the small ponds which scatter the rural land scope of Bangladesh.

Contrary to your announcement, Monsanto's technologies are not environment friendly, or sustainable. They pose a threat to ecosystems and agriculture. Monsanto's technologies will push Bangladeshi peasants into debt as they have to spend more money on herbicides, seeds, royalties and technology fees. This rising indebtedness of farmers is intrinsic to industrial agriculture and is the reason why only 2 per cent farmers survive in the U.S. and thousands of farmers have commited suicide in India.

Grameen Monsanto Centre will become a partner in the destruction of biodiversity and farmers livelihoods supported by free access to biodiversity. You will have contributed to the establishment of monopolies on seeds through patents with Monsanto collecting rents every year from farmers for saving seed or through technologies like the "Terminator" which are designed to prevent the germination of future generations of seed so that farmers are forced to buy seed every year. Your microcredit support to the spread of Terminator seeds or patented seeds will not liberate the poor, it will enslave them irreversibly. Monsanto controls the Terminator technology through its recent purchase of Delta and Pine Land. Monsanto has also bought up Cargill seeds, MAHYCO, Holden, DeKalb, Agracetus, Calgene, Asgrow and is emerging as a global monopoly which threatens food security world wide.

People around the world are concerned and are questioning this monopoly and fighting it.
You have made a name for yourself in the annals of history through your innovation and commitment to the poor in setting up the Grameen Bank to serve rural women in Bangladesh.

I am sure you will not want your efforts to be hijacked as a marketing strategy by Monsanto. The US$ 150,000 that Monsanto is giving to start the Grameen Monsanto Centre is a miserable 0.6 per cent of US$ 1.6 billion that it is spending in an advertisement campaign against the consumers in Europe who have rejected Monsanto's genetically engineered foods. I am sure you do not want to go down in history as the man who took the side of a corporation against citizens worldwide and who introduced destructive technologies and corporate monopolies in Bangladesh and robbed rural women of their resources, their knowledge, and their right to life.

> We call on you to withdraw from this partnership with Monsanto and invite you to join the growing world wide movement of people against Monsanto and against genetic engineering and patents on life.

Yours sincerely,

Dr. Vandana Shiva
Director, Research Foundation for Science, Technology and Ecology

Founder, Diverse Women for Diversity

Source: Personal communication (unedited) from Vandana Shiva to Mohammad Yunus. Online at: http://www.corporatewatch.org. Accessed March 2000.

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