

Agricultural Biotech Companies Are Pesticide Companies



No matter how they describe themselves, agricultural biotechnology companies are pesticide companies. Over the past several decades, these pesticide companies have broadened their portfolios to include crops genetically engineered (GE) to resist particular brands of weed killers and crops that produce their own insecticides. These crops keep farmers on the pesticide treadmill and strengthen corporate control of our food supply. About 73% of all GE crops planted last year were engineered to be used with weed killers—not to increase yields or to be drought tolerant, but to increase sales of special brands of weed killer.

The pesticide/biotechnology industry is dominated by a few main players. Due to regularly occurring buy-outs and mergers, the number continues to dwindle. Currently—and this might change at any time—Monsanto, Aventis and Syngenta are three of the companies that dominate the market for genetically engineered seed. These companies are also among the top seven pesticide companies worldwide.

Below are some facts about three leading corporations in the ag-biotech-pesticide industry.



While many companies are involved in genetic engineering, Monsanto is the undisputed leader in

development, commercialization and sales of GE seeds—with over 90% of the acreage of GE crops worldwide planted with Monsanto seed. Monsanto is a U.S.-based multi-national corporation with over 14,700 employees worldwide.

Pesticides

Monsanto is one of the largest pesticide companies in the world, second only to Syngenta. Roundup (active ingredient glyphosate) is Monsanto's flagship weed killer (or herbicide), accounting for 67% of the company's total sales or about \$2.6 billion annually.

A number of environmental and human health problems are associated with glyphosate. For example, in studies of people (mostly farmers) exposed to glyphosate, exposure is associated with an increased risk of miscarriages, premature birth and the cancer, non-Hodgkin's lymphoma.

Monsanto's other top weed killers include:

- **FulTime** (acetochlor)—Acetochlor is ranked by the U.S. Environmental Protection Agency (EPA) as a probable human carcinogen.
- **Machete** (butachlor)—Though Monsanto produces butachlor in the U.S., it is not registered for use in this country. EPA states that the herbicide is "likely to be carcinogenic to humans."

GE crops in the U.S.

In the U.S., Monsanto has had many more GE crops approved than any other biotechnology company. They include:

- **Roundup Ready canola, corn, cotton, soybeans and sugarbeet**—genetically engineered to resist Roundup.
- **YieldGard corn**—genetically engineered to produce its own insecticide.
- **Bollgard cotton**—genetically engineered to produce its own insecticide.

GE flops

Monsanto has also had GE crops approved that are no longer on the market. These include:

- **FlavrSavr tomato**—genetically engineered to ripen without becoming soft. These are no longer grown due to lack of consumer response.
- **NewLeaf potatoes**—genetically engineered to produce its own insecticide. In 2001, Monsanto announced that it would no longer sell these potatoes to farmers. Some speculate that this was due in large part to McDonalds' decision not to use GE potatoes for its French fries following consumer protests.



Aventis, a French-based multinational corporation focusing on pharmaceuticals and agricultural products, employs over 92,000 people in over 100 countries around

the world. Following the lead of other "life science" industry giants such as Pharmacia, Aventis is currently in the process of selling off its CropScience division, which employs 16,000 in more than 140 countries.

Pesticides

Aventis CropScience is the third largest pesticide company in the world, with sales of more than US\$3.7 billion in 2000. Some of its top pesticides include:

- **Temik** (aldicarb)—Aldicarb, included on PAN International's Dirty Dozen pesticide list, is one of the most toxic pesticides registered for use in the U.S. The World Health Organization classifies it as "extremely hazardous."
- **Buctril** (bromoxynil)—Bromoxynil is listed by EPA as a developmental toxin that can cause birth defects and other problems, and as a possible human carcinogen.
- **Regent** (fipronil)—EPA lists fipronil as a possible human carcinogen.

- **Balance** (isoxaflutole)—Isoxaflutole is a probable human carcinogen and may cause birth defects.

GE crops in the U.S.

Aventis has several GE crops approved in the U.S. including:

- **BXN cotton**—cotton genetically engineered to resist the weed killer bromoxynil.
- **Liberty Link canola, corn, soy and sugarbeet**—engineered to resist the weed killer glufosinate.

The StarLink disaster

Aventis' StarLink corn was genetically engineered to produce a toxin that kills certain corn pests. It was approved in the U.S. *only* for animal feed and with the condition that farmers and food processors would separate StarLink from other types of corn due to EPA's concerns that it could cause allergic reactions in humans.

In 2000, GE Food Alert discovered that, due in large part to Aventis' disregard for requirements imposed by EPA, StarLink corn had made its way into food products. Over time, more than 300 items were recalled by the U.S. Food and Drug Administration, and over 40 people reported allergic reactions. Aventis and the U.S. Department of Agriculture attempted to buy back all the StarLink corn still growing in farmers' fields, but large quantities of the corn harvest were already contaminated through cross pollination and mixing at grain silos. StarLink is no longer sold to farmers. The incident was estimated to have cost Aventis more than \$100 million, in addition to costs to food processors and the U.S. government, and Starlink is no longer on the marker.



Syngenta, a Swiss-based multinational corporation, was formed in November 2000 by

the merger of Novartis Agribusiness (Switzerland) and Zeneca Agrochemicals (United Kingdom). The corporation employs more than 20,000 people worldwide and is divided into two divisions: crop protection (i.e. pesticides) and seeds.

Pesticides

Syngenta is the largest agrochemical company in the world. It has an extensive global network of national pesticide companies that is in large part responsible for its success in selling pesticides. Some of its top pesticides include:

- **Gramaxone** (active ingredient paraquat)—Swallowing as little as one teaspoonful of paraquat can be fatal. Paraquat is extremely hazardous to mammals by all routes of exposure.
- **AAtrex/Gesaprim** (active ingredient atrazine)—Atrazine is a known endocrine disruptor, which interferes with hormone function, and is also a possible human carcinogen.
- **Bravo** (active ingredient chlorothalonil)—Chlorothalonil is listed by EPA as a probable human carcinogen.
- **Topik** (active ingredient clodinafop)—According to EPA, clodinafop is a probable human carcinogen.

Terminator and Traitor technologies

Terminator technology is the genetic modification of plants to produce sterile seeds. Syngenta has a number of Terminator patents. The most recent, awarded in November 2000, is for a complex system of control for a plant's fertility, meaning that a chemical can be used either to cut off or to restore a plant's fertility.

AstraZeneca, Novartis and now Syngenta also have patents for other "chemically dependent" plants, called Traitor Technology by the Rural Advancement Foundation International (RAFI). This means that a plant's genetic traits—such as flowering, fruit ripening, nutritional qualities and disease resistance—can be turned "on or off" with the application of certain chemicals.

Groups and governments around the world have called on Syngenta to abandon these technologies, but the corporation continues to pursue new patents. Syngenta owns more than 40% of the patents for Terminator and Traitor technologies.

GE crops in the U.S.

Syngenta has received approval in the U.S. for three GE crops—two types of corn that produce an insecticide and sugarbeet resistant to a weed killer.

Resources

"Aventis in Brief," <http://www.aventis.com>.

Agrow: World Crop Protection News, March 2, 2001.

H. Warwick, Syngenta: Switching off farmers' rights, Genetics Forum, October 2000.

Herbicide Factsheet: Glyphosate (Roundup), Journal of Pesticide Reform, Fall 1998, updated November 1998. (<http://www.pesticide.org>)

Illinois EPA, Report on Endocrine Disrupting Chemicals, Illinois, EPA, 1997.

Monsanto, "A Single Focus," 2000 Annual Report, <http://www.monsanto.com>.

PAN International, Dirty Dozen Pesticide Fact Sheets, 1990.

PANUPS, Top Seven Agrochemical Companies in 2000, May 23, 2001.

RAFI Geno-Types, January 7, 2000, "AgBiotech's Five Jumbo Gene Giants."

RAFI, "2001: A Seed Odyssey," RAFI Communiqué, Issue #68, Jan./Feb. 2001.

RAFI, "Speed Bump or Blow-Out for GM Seeds?" December 21, 2000.

U.S. Environmental Protection Agency, Office of Pesticide Programs List of Chemicals Evaluated for Carcinogenic Potential, August 30, 2000.

U.S. Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances. September 15, 1998. Pesticide Fact Sheet: Isoxaflutole. Washington, DC.

U.S. Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances. September 1998. Reregistration Eligibility Decision (RED): Bromoxynil. Washington, DC.

Union of Concerned Scientists, "Foods on the Market," March 2000. <http://www.ucsusa.org/agriculture/gen-market.html>.

Wall Street Journal, March 22, 2001.

For more information about pesticides and the U.S. Environmental Protection Agency's classifications, visit PAN North America's Web site and our pesticide database: <http://www.panna.org>



Pesticide Action Network North America

(PAN North America) advocates adoption of ecologically sound practices in place of hazardous pesticides and genetically engineered crops. PAN North America has over 100 affiliated groups in Canada, Mexico and the U.S., providing technical support and participating in joint projects with partner non-governmental organizations in Africa, Asia and the Americas. For more information, visit <http://www.panna.org>.



PAN North America is one of the founding members of the **Genetically Engineered Food Alert Campaign**. Genetically Engineered Food Alert is a coalition of organizations concerned with the protection of consumers rights, public health and the environment. In an effort to better educate the public, Genetically Engineered Food Alert has launched a nationwide campaign about the risks associated with genetically engineered foods. For more information, visit <http://www.gefoodalert.org>.