



Genotype
1 May 2002
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ETC group responds to Purdue University's recent efforts to promote genetic seed sterilization - or Terminator -- as an environmental protection technology

Background:

An article by Purdue Agriculture Communications (distributed by AScribe Newswire on April 19) quotes Purdue University professors and one University of Oklahoma law professor who unabashedly promote Terminator technology - claiming that it was developed as an environmental protection tool.

Go here to view Purdue's pro-Terminator article: <http://www.biotech-info.net/sterilization.html>

Terminator refers to a technique for genetically modifying plants to produce sterile seeds. It has been censored by United Nations bodies and widely condemned by civil society as an anti-farmer technology because three-quarters of the world's farmers routinely save seed from their harvest. If commercialized, Terminator technology would prevent farmers from saving seed, forcing them to return to the commercial market every year. Due to widespread public opposition, the Monsanto Corporation and AstraZeneca (now Syngenta) publicly vowed not to commercialize the technology in 1999.

Terminator seeds quickly became a symbol of corporate greed and shattered the industry-manufactured myth that biotechnology aims to feed hungry people. As a result, multinational Gene Giants hastily retreated from openly pursuing the taboo technology. That is precisely why Purdue University scientists and other pro-industry academics are now paving the way for public and commercial acceptance of Terminator. It is not surprising that Purdue University is openly supporting suicide seeds; the University was granted a patent on its own version of Terminator technology in March 1999 (WO9911807 was issued to Purdue Research Foundation on March 11, 1999). Proponents of Terminator make the condescending claim that opposition to Terminator technology stems from a lack of scientific understanding. The so-called "biotech experts" seek to re-write history by claiming that the technology was developed as an environmental protection strategy to contain gene flow from genetically modified crops. Terminator proponents not only hope to discredit civil society organizations that are critics of suicide seeds, they also seek to undermine the credibility of intergovernmental bodies that have adopted policies opposing Terminator.

According to Purdue scientists, unsophisticated opposition to genetic seed sterilization has resulted in "reckless policy decisions." The Consultative Group on International Agricultural Research, the largest network of public agricultural research institutes in the

developing world, was the first international body to adopt a policy prohibiting the use of genetic seed sterilization. One Purdue professor claims that FAO's censure of the technology "was a political decision not based on understanding neither the science nor the environmental benefits of trait protection systems."

William Muir, Purdue University Professor of Animal Sciences, is quoted in the April 19 article saying that "the downside of the [Terminator] technology is minor in comparison to the potential benefits." Purdue professor Paul Thompson states, "The important thing that is being overlooked is that incorporating the [Terminator] gene is a good strategy for limiting the environmental impact of genetically modified plants."

In the same article, Thompson states that, "It's an issue that's not very well understood, and I think environmental groups haven't thought through the potential benefit of the gene." Thompson, a bioethicist, seems puzzled by the moral dilemma posed by genetic seed sterilization and the reality of food insecurity for poor people who depend on farm-saved seed: "Terminator has captured the public's attention unlike any other form of biotechnology out there. I have no idea why that is. My speculation is that making a seed sterile goes against some basic sense of what's right."

ETC group Responds:

Although Purdue is considered one of America's premiere agricultural universities, some Purdue professors are not aware that, according to the United Nations, 1.4 billion people on this planet depend on farm-saved seed for their survival. The farmers' 12,000 year-old tradition of saving, exchanging and adapting seeds is the foundation for food security and sustainable agriculture. If commercialized, Terminator technology has the potential to restrict the food-producing capacity of farmers. For that reason, it has been widely condemned as an immoral application of agricultural biotechnology.

Purdue University is not alone in its campaign to win commercial approval for Terminator. In August 2001 the United States Department of Agriculture (USDA) announced that it had licensed its Terminator patents to Delta & Pine Land Seed Co. - the world's largest cotton seed company. Delta & Pine Land has publicly stated its intention to commercialize Terminator seeds. Other companies continue to develop and refine genetic seed sterilization. Patent owners include major seed and agrochemical corporations and research institutions such as: Syngenta, Monsanto, DuPont, BASF, Delta & Pine Land, as well as the US Department of Agriculture, and Cornell, Purdue and Iowa State universities.

Terminator Technology was not developed as a biosafety tool

It is revisionist history, and a cynical strategy, to suggest that Terminator was developed as a biosafety tool. In March 1998 when the USDA and Delta & Pine Land announced their newly won patent on genetic seed sterilization, they stated unequivocally: "The principal application of the technology will be to control unauthorized planting of seed of proprietary varieties (sometimes called 'brown-bagging') by making such practice non-economic since unauthorized saved seed will not germinate, and would be useless for planting." Neither USDA nor Delta & Pine Land promoted their newly patented technology as a biosafety tool. The primary aim of genetic seed sterilization is, and has always been, to maximize seed industry profits:

"Our system is a way of self-policing the unauthorized use of American technology. It's similar to copyright protection." **USDA spokesman, Willard Phelps, describing Terminator technology to New Scientist (interviewed in New Scientist, 28 March 1998)**

"My main interest is the protection of American technology. Our mission is to protect US agriculture, and to make us competitive in the face of foreign competition. Without this, there is no way of protecting the technology [patented seed]." **(Melvin J. Oliver, USDA molecular biologist and primary inventor of the technology, March, 1998, quoted in RAFI Communique, March 1998).**

According to USDA spokesman, Willard Phelps, The [Terminator] technology is designed "to increase the value of proprietary seed owned by US seed companies and to open up new markets in Second and Third World countries." **(Willard Phelps, USDA spokesman, described the newly patented technology to RAFI (now ETC), March 10, 1998).**

We are alarmed and insulted by the campaign to promote Terminator as a biosafety mechanism. It is unacceptable and dangerous to suggest that agriculture is dependent on genetic seed sterilization as a method for minimizing genetic pollution from genetically modified plants. There is growing evidence that unwanted gene flow from genetically modified plants is causing genetic contamination. Most recently, at the Sixth Conference of the Parties to the Convention on Biological Diversity in The Hague, April 8-19, the Mexican government confirmed that GM maize has contaminated farmers' maize varieties in the Mesoamerican center of genetic diversity. This is a serious problem that must be addressed, but food security for poor people must not be sacrificed to solve industry's genetic pollution problem. If GM seeds are ecologically unsafe they should not be used.

The promotion of Terminator seeds as a "green" solution to GM pollution is the Trojan Horse of biotechnology. If Terminator technology wins market acceptance under the guise of biosafety, it will be used as a monopoly tool to prevent farmers from saving and re-using seed.

Name Games: Using Language to Misconstrue History

Purdue's Paul Thompson states that "the Terminator tussle is just one example of how language has been used to misconstrue science." The article notes that the Terminator name was given to the technology by "anti-biotechnology interest groups," but that "the scientists who developed the gene originally gave it the name 'control of gene expression.'" The Purdue article demonstrates how language is being used to misconstrue history. While it is true that some of the Terminator patents are titled "control of gene expression," industry generally refers to genetic seed sterilization technology as TPS: the acronym does not stand for "Trait Protection System" as the article repeatedly states (five times); rather it stands for *Technology Protection System*. The name given to the technology by those who invented it now undercuts their revisionist history: if, in fact, it was the environment that was being protected by these altruistic researchers back in 1993, why wasn't that motivation reflected in the name they chose for it? Why didn't they name it EPS-- Environmental Protection System-- rather than employ the "misnomer" TPS, Technology Protection System? TPS is unambiguous: it is the technology that is being "protected" by the control of gene expression. The pro-Terminator campaign is making a desperate

attempt to erase evidence of industry's original (and ongoing) motivations to monopolize seed and maximize profits.

Terminator is an anti-farmer technology

According to Marshall Martin, associate director of Agricultural Research Programs at Purdue, because of poor profit potential in low-income developing nations, major seed companies don't consider farmers in these countries to be attractive customers. We reject the claim that the seed industry is not interested in marketing Terminator in the developing world, or that it will have no impact on poor farmers who cannot afford to buy Terminator seed. Patents on Terminator technology have been issued or applied for in over 90 countries worldwide.

There is no doubt that industry seeks to commercialize Terminator seeds in the South, as well as the North. The president of Delta & Pine Land, Murray Robinson, said that Terminator seeds could someday be used on over 400 million hectares worldwide. He also said that the technology would provide seed companies a "safe avenue" for introducing proprietary products into giant, untapped markets such as China, India and Pakistan. (*Seed & Crops Digest*, March/April, 1998.) A recent study on Terminator conducted by Wageningen University for the Food and Agriculture Organization of the United Nations, finds that "Serious seed security risk can be expected for those already seed insecure poor farmers who are not able to save their own seed for the next season. Risks of crop losses due to absent viability exist when poor farmers access the grain market for their seed (in many cases 20% of farmers), often at a late moment." (Visser, B., D. Eaton, N. Louwaars and I.M. Van der Meer, 2001. Potential impacts of genetic use restriction technologies (GURTs) on agrobiodiversity and agricultural production systems. FAO, Rome, Italy.)

In 1998, Harry Collins, Vice President of Technology Transfer for Delta & Pine Land, revealed an appalling lack of understanding and awareness when he promoted Terminator for Third World agriculture and dismissed the need for farmer selection, breeding and seed-saving: "The centuries old practice of farmer saved seed is really a gross disadvantage to third world farmers who inadvertently become locked into obsolete varieties because of their taking the "easy road" and not planting newer, more productive varieties." (From an unpublished paper distributed by Harry Collins at FAO meeting in Rome, 1998, entitled: "New Technology and Modernizing World Agriculture.")

Terminator Must be Terminated

The current campaign to promote seed sterility as an environmentally beneficial technology is illogical and dangerous, and it underscores the need for governments to take action. We urge national governments to ban the development and commercial use of Terminator - or any form of genetic trait control that controls seed sterility or viability and prevents farmers from saving and re-using seed from their harvest. We urge the FAO to call for a ban on Terminator technology at the World Food Summit Five Years Later in June, and for Heads of State meeting at the World Summit on Sustainable Development to affirm a complete ban on Terminator.

The Action Group on Erosion, Technology and Concentration, formerly RAFI, is an international civil society organization headquartered in Canada. The ETC group is dedicated to the advancement of cultural and ecological diversity and human rights. www.etcgroup.org