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Snakes in the GM Grass

Scotts Says GM Grass Could be Greener with Terminator

USDA's Biotech Advisory Board Ruminates on Terminator

GM (genetically modified) crops may be a fiasco on the farm, but Monsanto and its partner Scotts (Ohio, USA), are hoping that GM grass will be a sensation in suburbia. A page-one story in the *New York Times*, July 9th, reports that Scotts Company in collaboration with Monsanto and Rutgers University is developing genetically modified grass for suburban lawns and golf courses.[1] Scotts predicts that the market for GM grass could sprout to a whopping $10 billion. (By contrast, the entire commercial market for crop seeds in the US is worth approximately $5 billion per annum.) Monsanto and Scotts are developing herbicide tolerant strains that can withstand spraying of Monsanto's blockbuster weedkiller Roundup, as well as genetically altered, slow-growing ("mow-me-less") grass. Just around the dogleg, Scotts and Monsanto foresee GM grass in designer colours.

As the world's leading advocate of agricultural biotechnologies, Monsanto has spent years trying to win public acceptance of its GM products. The company overextended with more than $8 billion in seed company acquisitions in the late 1990s. Now, after having to negotiate an embarrassing merger with Pharmacia-Upjohn, rumours abound that the new entity may want to put all or parts of Monsanto on the auction block.

"Monsanto still can't seem to reach the green," observes Hope Shand, Research Director of RAFI. "They hoped that by shifting their GM offensive from the farm to suburbia they could make an easy hole-in-one while sidestepping the biosafety and consumer concerns."

Will the Scotts / Monsanto venture in weed-free, designer lawns and golf courses win the hearts and minds of suburbanites, and at long last gain consumer acceptance for biotech? Not in our backyards, says Jeremy Rifkin and the American Society of Landscape Architects who are petitioning the US government to mow down field tests of GM grass because of the potential ecological risks. According to one expert who has conducted field trials on bioengineered grass, GM grass pollen can migrate up to 3,000 feet, and can cross-fertilize with other grass strains. "Our concern is mostly with pollen flow" Crystal Fricker of Pure Seed Testing told the *New York Times*, "It's going to be a huge problem to keep this stuff contained."

'Snuff 'n Turf'?

But Scotts has a solution. The *New York Times* reports that Scotts "may adopt a Monsanto technology called Terminator, which makes seeds sterile" to prevent genes from jumping from lawn to lawn. (Terminator grass seeds would be genetically engineered so that they cannot reproduce.) "They could call it "snuff grass" or "snuff 'n turf' offers RAFI's Pat Mooney. In October 1999, Monsanto CEO Robert Shapiro vowed that the company would abandon its

[1] David Barboza, "Ground-Level Genetics, for the Perfect Lawn," New York Times, July 9, 2000, p. 1.

development of this controversial technology and never use it to create "suicide seeds". Does the report in the *New York Times* signal a breach of Monsanto's October 1999 commitment?

Will They or Won't They? Does Monsanto Know for Sure?
RAFI asked Mark R. Schwartz, head of the branded plants group at Scotts (Columbus, Ohio, USA), to comment on the *New York Times* article and the reference to Scotts using Terminator technology to contain GM turf pollen. According to Schwartz, "That was somewhat of a stretch by the reporter, I said that we could use a male sterility system to control potential pollen flow." Schwartz went on to say that he would be interested in pursuing a conversation with RAFI about the possible merits of using Terminator in situations that did not prevent farmers from saving crop seed. Schwartz told RAFI, "This technology [Terminator], that has gotten negative publicity on the food crop side, could be viewed as a positive for us."

RAFI also contacted Monsanto's Director of Public Policy, Kate Fish, who told RAFI: "We stand by our announcement of last October."

"The statement regarding Scott's adopting Terminator technology is inaccurate," wrote Fish. "I've learned through our business team that Scotts is not pursuing any biotechnology approaches that would render grass seed sterile. Our understanding is that Scotts has work underway to control pollen shed that would help manage potential outcrossing to other grass varieties, but that work is based on conventional isolation practices rather than on a biotechnology solution."

"To reiterate, neither Monsanto, nor any of our technology licensing partners -- including Scotts -- are working on sterile seed technology in their application of Monsanto's biotechnology traits," emphasized Fish.

RAFI later received an email message from Scotts, pledging its solidarity with Monsanto's position not to sterilize grass seed using Terminator technology.

Boon or Boondoggle? "There is no evidence that GM technology is any safer in the suburbs than it is in the grocery store," RAFI's Shand concludes, "We're not saying that GM golf courses will turn into Frankenfairways or that the backyard will mutate "Dandy Lions," we are saying that GM technology remains unproven everywhere and Terminator technology is dangerous *anywhere*. Until that changes, Monsanto and Scotts' suburban guerilla tactic should be rejected by municipalities and by families – with or without the use of Terminator technology."

The Director-General of the UN Food and Agriculture Organization (FAO), the Consultative Group on International Agricultural Research (CGIAR, the world's largest international ag research network), leading environmentalists and many national governments have all condemned Terminator Technology as a threat to the environment and to world food security. Last year, the two leading corporate proponents of the technology, Monsanto in the USA and AstraZeneca in Europe, bowed to the pressure and agreed not to develop or use Terminator. In recent months RAFI has reported that many companies themselves or their affiliates or joint ventures continue to move Terminator closer to commercialization. In 1999, seven new patents were issued for genetic seed sterilization. (For more details, see "Terminator on Trial" 12 May 2000, http://www.rafi.org)

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Day of Reckoning for USDA's Biotech Advisory Board
Terminator is the lead topic when the US Department of Agriculture's Advisory Board on Agricultural Biotechnology meets July 26-27. The USDA, which holds three patents on

Terminator technology, was forced to create its biotech advisory board, in part, because of the massive public protest against USDA's promotion of suicide seeds. And despite Monsanto and AstraZeneca's public commitment not to commercialize Terminator, the Agency continues to defend and support its work on genetic seed sterilization.

Historically, USDA's position on Terminator has been confusing and inconsistent. When USDA proudly announced that it won its first Terminator patent back in 1998, the agency openly admitted that the technology was designed to prevent farmers from saving seed and to bolster seed industry profits. A USDA "fact sheet" on Terminator published later that year declared that the agency 'has no plans to insert the system into plant materials it publicly releases for variety development programs.' In other words, the USDA did not feel that the technology was appropriate for public distribution to US farmers.

"Today, the agency claims that Terminator could be beneficial because the technology may prevent gene flow in GM crops," explains RAFI's Shand. "Industry and USDA are hoping that the 'Green Gene' defense will pave the way to commercialization for a morally bankrupt technology."

"It's a classic fifth column strategy to commercialize Terminator technology, explains RAFI's Pat Mooney. "The technology is a hot potato and politically risky for the Gene Giants to embrace openly, so USDA and other scientific bodies are towing the industry line by championing the environmental benefits of Terminator."

"We reject the Green Gene defense of Terminator because, first of all, it is an admission that genetically modified crops are not safe and pose risks to the environment," says Julie Delahanty of RAFI. Why should society accept the use of a dangerous and immoral technology like Terminator to make genetically engineered crops -- another untested, unproved technology -- safer? Suicide seeds offer no agronomic benefit, so there's no reason to accept any level of risk," concludes RAFI's Delahanty.

Gary Goldberg, CEO of the American Corn Growers Association, agrees, "The use of taxpayer money to develop Terminator is a giant kick in the teeth to farmers everywhere. Terminator technology is designed solely to maximize seed industry profits. In my opinion, the Biotech Advisory Board should focus on one question: How fast can USDA ban the technology and abandon its patents?"

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RAFI (The Rural Advancement Foundation International) is an international civil society organization based in Canada. RAFI is dedicated to the conservation and sustainable use of biodiversity, and to the socially responsible development of technologies useful to rural societies. RAFI is concerned about the loss of agricultural biodiversity, and the impact of intellectual property on farmers and food security.