

nature biotechnology

VOLUME 18 OCTOBER 2000

The Ecogen 66 sacrificed for the Greenpeace 28

By the time *Nature Biotechnology* is published, the trial of the Greenpeace 28 will have ended. The 28 ecoactivist defendants who cut down and removed genetically modified (GM) corn from a farm in Lyng in eastern England in July 1999 will either have been convicted or cleared of "criminal damage." Whatever the outcome in this, however, Greenpeace is guilty of a much broader and far-reaching crime against the environment.

Eco-terrorism is infectious. In the past few months, the Earth Liberation Front has set fire to Michigan State University's agricultural research department, destroyed GM oat plants at the University of Minnesota, and vandalized (presumably by mistake) non-GM corn plantings at Cold Spring Harbor Laboratory. Other activists mistakenly destroyed around 2,000 non-GM tree seedlings at a British Columbia Forests Ministry orchard on Vancouver Island. These more radical groups, however, play the public relations game poorly. Their raids are furtive and their communications aggressive and anonymous. It is easy to brand them as faceless and mindless vandals.

Greenpeace UK, on the other hand, seems to have perfected the art of PR. At the original mayhem in Lyng, Greenpeace invited a reporter from a national newspaper and a video film crew to watch. It did not destroy the crops, it harvested them to prevent the spread of pollen. It planned to return the plants in bags to their owner, Aventis Crop Science. Now Greenpeace is making great play of the protracted legal process.

It is martyring its agricultural vandals. The phrase "Greenpeace 28" used in its press releases has connotations of innocence, recalling as it does for people in the UK "The Guildford Four" and "The Birmingham Six," groups wrongly imprisoned for terrorist crimes. On its website (www.greenpeace.org.uk), it is cultivating the personalities of its "volunteer" defendants, as if to suggest that being a real person excuses criminal behavior. We can thus learn that the Greenpeace 28 includes a minister of religion, a vegan and vegetarian restaurateur, an engineer, and a mature student in social policy and environmental science.

In short, with the exception of those born into a life of privilege, most of the Greenpeace 28 are salaried middle-class professionals who took a break from their day jobs to have a roll in the corn. They are backed by a slick professional organization that has found a highly effective way of operating at the very edge of the law. It will hardly matter much to the organization if the Greenpeace 28 are convicted. The extended publicity surrounding the case is an elixir for its message.

Whatever Greenpeace achieves in court, its eco-paganistic rituals have already put a hex on genuinely productive efforts to reduce the environmental impact of agriculture. Aventis Crop Science will probably survive the onslaught. The future is much less certain for companies such as Ecogen.

Ecogen is a small company based in Langhorne, PA, which developed a number of biological insect control agents based on pheromones, fungicides, nematodes, and genetically engineered

bioinsecticides expressing various *Bacillus thuringiensis* toxins. Back in 1996, Ecogen struck an R&D deal with Monsanto, the St. Louis (MO) company that was then riding high with investors on the back of its daring strategy of packaging its technology biologically rather than chemically. Monsanto took an equity stake in Ecogen and largely funded its research program until 1998. Monsanto folded Ecogen's *Bt* toxins into various plant varieties and embarked on extensive field trials. When approved (if approved), some modest royalties will accrue to Ecogen. Adverse public perceptions of GM crops create doubts in financial markets, which left Monsanto with debts it couldn't cover. As a major player in green biotechnology, Monsanto's woes were transmitted to its feeder companies. In September, Ecogen was delisted from Nasdaq because it failed to meet the Nasdaq's net tangible assets criterion. The debts it had accrued simply reduced the value of its business below the Nasdaq threshold.

At the time of its initial agreement with Monsanto, Ecogen employed 100 full-time staff. By December 1999, that number had fallen to 34. Forget the Greenpeace 28; what about the Ecogen 66?

The \$30 billion punt

Denares, dosh, dough. Whatever you want to call it, biotechnology companies can do nothing without cash. The problem sometimes, though, has been that they can do nothing with it either.

It was, to a first approximation, a year ago that investors returned to biotechnology. In the year before October 1999, biotechnology companies received on average only \$500 million of OPM (other people's money) per month. From October 1999 to August 2000, however, the financial markets gave biotechnology firms at least \$1 billion every month; the average was over \$2.7 billion a month and the peak, in March, was over \$8.5 billion.

Alas, the bread-fest may be over, at least for a little while. As *Nature Biotechnology* went to press, it looked pretty unlikely that September would make it to the billion-dollar mark. At the very least, this should be a reminder that money people do not always smile on the life sciences sector. But then again, the life sciences sector has not always given the money people much to smile about.

When money is short, the sector may have an excuse: it's difficult to innovate profitably when everything you develop has to be sold in a buyer's market. However, the life sciences sector has garnered a 12-month financial harvest of over \$30 billion, five times the figure for the year before. Thirty billion dollars is 10 Human Genome Projects worth (or a hundred the way Celera did it). It's more than three times what public biotechnology companies worldwide spend on R&D in a year. Investors are betting that with this kind of money biotechnology can get itself a name as a force for genuine good, the improvement of the human lot, and profit. If it can't, it may be time to give up altogether. The financiers certainly will.

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