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## Transgenic trees and Terminator technology

There are many reasons why it is essential to oppose the introduction of transgenic trees, such as their impact on forests, biodiversity, lands and the people who inhabit them. One reason is that contamination with transgenic pollen from these trees is utterly uncontrollable. Although this could be used as an argument for banning them, it is now used by their promoters to push through yet another nightmare: the so-called *Terminator* technology, originally developed to create “suicide seeds.”

Pollen contamination from transgenic agricultural crops, which are planted and harvested on a seasonal basis, has become a serious problem worldwide with wide-ranging consequences, from biological and ecosystem impacts to economic, social and cultural disruption. Even more harmful are its impacts on crops in their centres of origin and diversification, as is happening today with maize and rice.

This type of contamination can cause, for instance, serious malformations in maize plants which reject the alien transgenic material. Moreover, transgenic contamination involving patented genes (1) has sparked hundreds of lawsuits against the victims, who are being sued by the transnationals for “wrongful use” of their patented materials. These are just a few of the many problems associated with transgenic contamination, and there is irrefutable proof that it is in practice impossible to contain.

Commercial sowing of transgenic crops is only permitted in 27 countries and 98% of these crops are concentrated in no more than 10 countries. Yet, around 400 cases of transgenic contamination have been found in more than 60 countries (2). This demonstrates that contamination — whether by wind-blown pollen, insects or other means including shipping and marketing — is inherent in all transgenic varieties, which escape from authorized plantation fields and spread across national borders.

If this is the case with seasonal crops, which are harvested and removed each year, imagine what will happen with the pollen from transgenic trees, which shed pollen for decades that is capable of drifting for many kilometres.

Because of the long life of transgenic trees and the large areas their pollen can contaminate, the effects on forests, biodiversity and the interactions with cultivated and natural species are unpredictable. There are no analytical methods that can forecast the dynamic factors in play and the continuous natural – or non-natural – transformation of ecosystems.

This should be an irrefutable reason for banning transgenic trees, as nature would be intentionally exposed to a self-replicating time bomb, impossible to track, let alone defuse.

### **“Terminator”: Seeds without a future**

Paradoxically and cynically, instead of supporting a ban on transgenic trees, the serious implications

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of transgenic contamination are used by advocates of the technology in Brazil as an argument to press for legalization of yet another dangerous technology, the so-called Terminator technology, which creates “suicide seeds” that grow and yield fruit, and then become sterile.

This transgenic technology – known at the United Nations as Genetic Use Restriction Technology (GURT) – was originally designed by the United States Department of Agriculture (USDA) and the company Delta & Pine, owned by Monsanto Corporation, to prevent farmers from sowing seeds recovered from their own harvests.

Terminator is the “dream” of all agribusiness transnationals because it means farmers are forced to buy new seeds every year. Those who currently buy hybrid seeds, in many cases are already buying them every season, but many other family and peasant farmers cross-breed hybrid seeds with their own native seeds and create new, fertile varieties. With Terminator, there would be no option: they would have to buy new seed every year and in this way they would become completely dependent on the companies.

Not only Monsanto but also Syngenta and other companies that control the global agricultural transgenic market hold patents on this deadly technology. However, they have not been able to implement it. In 2000, the UN Convention on Biological Diversity (CBD) established an international moratorium on experimentation, sowing and release of Terminator seeds because of the potential impacts on biodiversity and food security.

Brazil turned the UN moratorium into its national laws, and its current biosafety law bans the use of this technology. But Brazil is the world’s second producer of transgenic seeds and a country where transnational agribusiness companies lobby in various ways for permission to use technologies, seeds and inputs that are banned in other nations. For years, there has been a campaign to reverse the ban on Terminator. It was Brazil’s Agriculture minister Kátia Abreu, a known defender of large estate owners and agribusinesses, who, as a member of Congress, put forward the first draft law to legalize this technology in Brazil.

If Brazil were to lift the ban on Terminator it would be a *de facto* violation of the United Nations’ international moratorium, and this would have a strong negative impact on other countries whose governments might see it as an example to follow. There would be a domino effect which would open a Pandora’s box, releasing hazardous plants and technologies. Similar consequences would happen if the first application in Latin America for commercial release of transgenic eucalyptus trees, now being discussed by the National Technical Commission on Biosafety (CTNBio) in Brazil, would be approved.

Terminator technology is a genetic chain reaction designed to be activated by a chemical inducer, but it can also be activated by environmental stress factors. The technology is complex and unproven. Scientific studies presented to the CBD showed that in a significant proportion of plants, the inserted genes are not functional, that is, they remain “silenced”. However, contamination with “silenced” Terminator pollen will occur anyway. Worse still, these “silenced” genes may not activate the sterilization mechanism until it is triggered by an external chemical or environmental factor. Thus the “silenced” genes continue to be transmitted until sterilization is activated at an unknown time in the future.

In spite of industry propaganda, Terminator will not solve the problem of transgenic contamination in crops, trees or any other organisms. On the contrary, because of their vast and uncontrollable social, economic and environmental impacts, transgenic trees and Terminator are two proposals useful only

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for increasing corporate profit, to the detriment of local communities and biodiversity. They should be banned.

The protest action in March 2015 by hundreds of women from Brazil's Landless Workers Movement (MST) and *La Via Campesina*, together with international campaigns (3), managed to block approval of the first commercial release of transgenic eucalyptus trees in Latin America. We need to continue and increase resistance, with solidarity from all parts of the world.

For more information about transgenic trees, see: [wrm.org.uy](http://wrm.org.uy) and [stopgetrees.org](http://stopgetrees.org)  
For more information about *Terminator* technology, see: [www.etcgroup.org](http://www.etcgroup.org)

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(1) Patents on genes and genetic constructs – the vast majority owned by biotech and agrochemical companies – grant exclusive industrial property rights over the genes used in transgenic organisms. Ten multinationals control 76% of the world seed market. Most of the genetic resources found in the countries of the global South are already gathered into gene banks and botanical gardens in the countries of the North.

(2) GeneWatch and Greenpeace, 2014, <http://www.gmcontaminationregister.org/>

(3) See: [stopgetrees.org](http://stopgetrees.org)