Terminator technology in agricultural crops and GEtrees: A threat to food sovereignty

I come from a family that considers seeds as something sacred. Back in my father's day, our neighbours could sleep peacefully, because they knew that my father had a safe supply of seeds to plant. (Family farmer, Paraíba)

Seeds are a farmer's greatest heritage. They are the basis of agricultural production, and therefore, of the food supply of any nation. For ten thousand years, communities of small farmers, indigenous peoples and traditional peoples have freely improved and multiplied their seeds, making the exchange of seeds a moment of joining together and sharing between peoples and nations.

It is for this very reason that international agreements like the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) (Articles 5, 6 and 9) and the UN Convention on Biodiversity (CBD) (Articles 10 c and 8 j) protect and encourage the strengthening of customary practices such as the on-farm storage, exchange, sale and improvement of seeds by farmers, practices that are fundamental for the conservation of the biodiversity and agrobiodiversity of the world's countries.

It is only over the last 40 to 50 years that seeds have become a big business; minor changes made by multinationals can now be patented, and seeds, which were always freely traded, have been privatized, and transferred from the hands of farmers – and therefore, the citizens of each country – into the hands of big corporations.

Today, with the development of genetically engineered (GE) seeds, corporations have developed a technology that gives them total and absolute control over seeds, turning small farmers and even large agro-industrial producers into hostages of the multinationals in order to obtain their seeds. Our food supply will be controlled by four or five companies that control more than 60% of the world seed market. This new technology is called Terminator.

My father always had the custom of storing seeds. He would plant one year, and then he would select seeds and shell them, all by hand. I remember that I used to help him, it was nice shelling the seeds like that. So imagine, with seeds like those, it would mean the end of a tradition that goes back years and years, because they couldn't be used again. (Family farmer, Paraná)

Terminator technology involves the genetic engineering of plants so that they produce seeds with sterile offspring, which therefore cannot reproduce. The scientific name for this is Genetic Use Restriction Technologies, or GURTs. Terminator seeds cannot be saved from one harvest and used to plant the next season, since they will not germinate, because they are dead.

It's as if we were also programmed to die. As if we knew that we were going to die at a determined moment. As if we were only here for a short time; once the harvest was finished, we would die. That's the way they're programming the seeds. (Family farmer, São Paulo)

What are the possible consequences of this technology?

An Ad Hoc Technical Expert Group was established by the United Nations to assess the potential impacts of GURTs on small farmers and indigenous and traditional communities, and concluded that they pose a serious threat to the food sovereignty and food security of these communities.

The possible impacts of Terminator technology identified in the group's report include the following:

- May reduce and limit traditional seed exchange practices
- May reduce the knowledge and local innovation capacity of local and indigenous communities for crop improvement
- Could reduce or negatively affect local agrobiodiversity, and result in a deterioration of indigenous knowledge systems
- May cause seed dependency or crop failure
- Could negatively and irreversibly create changes in the environment caused by gene flow between Terminator varieties and normal plants.

The most recent justification for the use of GURTs is that they can serve as a “biosecurity measure” to prevent the cross-contamination of conventional or organic plants by transgenic varieties.

This proposal is particularly perverse, since it could lead to the following scenario for small farmers and local communities. Even if we accept that there will be no continuity of contamination, the fact is that there is contamination in the first generation, and conventional or organic farmers whose crops are affected will lose their seeds from that point onwards, since they would be contaminated by Terminator varieties. In other words, while the contamination will not be passed on, it is precisely because the farmer's seeds that have been contaminated will also become sterile.

For these and other reasons, the 193 parties to the Convention on Biological Diversity established an international moratorium on Terminator technology or GURTs through Decision V/5 of the year 2000. This moratorium has been renewed in subsequent meetings of the Conference of the Parties (COPs) and its maintenance was supported by the Brazilian government at the last meeting, COP 10 in Nagoya, Japan in 2010, in line with Notice No. 10/DEMA/CGFOME/AFEPA/SEAN BRAS, issued by the Environment Division of the Brazilian Foreign Ministry on April 23, 2010.

This is a technology that takes away the autonomy of small farmers, because it will only strengthen the big companies that will produce the seeds. It will take away the possibility for farmers to select seeds and save them in the way they have traditionally done, the way they learned from their fathers, from their mothers, from their grandparents. (Family farmer, Maranhão)

What is the status of Terminator technology in Brazil ?

Brazil 's Biosecurity Law currently prohibits “the use, sale, registration, patenting and licensing of genetic use restriction technologies” (Law 11.105, Article 6) which involve the production of sterile reproductive structures or the activation or deactivation of fertility-related plant genes by external chemical inducers.

Nevertheless, despite the international moratorium and the current national prohibition, there are two

bills in the Brazilian Congress aimed at authorizing the release of Terminator seeds in Brazil . Bill 268/07 was originally tabled by Senator Katia Abreu (Democratic Party-State of Goias) and is now sponsored by Deputy Eduardo Sciarra (Democratic Party-State of Parana). In 2009, Deputy Cândido Vacarezza (Workers' Party PT-State of Sao Paulo), who had never before been involved in the agricultural sector, introduced Bill 5575/09 which would allow the release of Terminator seeds. Last year, the Campaign for a GMO-Free Brazil revealed that the file of the text of the bill available on the Chamber of Deputies website had been originally drafted on the computer of an attorney from the Monsanto corporation! This clearly demonstrates the interests that are pushing for this proposed legislation. The bill has been highly challenged while making its way through the Chamber of Deputies, and now the creation of a special commission has been proposed to speed up the process.

First of all, there will be poverty. Because, just think about it, think about us, the small farmers, how do we make a living? From our own seeds! We can't buy seeds, we produce our own seeds, ourselves. So imagine the poverty this could bring about. Because farmers will not be able to plant the seeds they have, their own seeds. Instead of helping farmers, this will only bring more poverty. (Family farmer, Paraná)

I think that in Brazil there would be a very big impact from the loss of our seeds. Above all it would create dependence, since farmers would have to buy seeds every year from the multinationals. For us this would be a major step back in the cultural progress of our communities. And also because today, it is small farmers who sustain Brazil, and for us, who store seeds as soon as we harvest them, it isn't possible to buy new seeds every year. (Family farmer, Paraná)

In Brazil there is ever growing pressure for the approval of GE trees. Although these are viewed warily by the majority of parties to the CBD, the pressure exerted by a few countries succeeded in opening up the possibility for each country to decide on its own account and at its own risk whether to authorize their release. The risks are even greater, since the pollen from the trees travels much greater distances, increasing the threat of contamination. The increasingly greater demand for wood pulp and the advances in synthetic biology for research into the use of pulp as agrofuel has led the transnationals to further step up the pressure for the approval of transgenic eucalyptus, which is already under consideration by the National Biosafety Technical Commission (CTNBio).

The approval of Terminator technology could be linked to this process, since one of the “arguments” for it, as we mentioned earlier, is that if all GE trees were also Terminator trees, this could prevent the contamination of other trees. However, according to researchers, the technology is highly unstable and subject to many flaws, and so even specimens programmed not to germinate could germinate anyway, maintaining the risk of contamination.

In both Brazil and other countries, there is a need for widespread social mobilization to stop the release of this technology at all costs. Beyond the obvious risks posed by genetically modified organisms (GMOs)in environmental, social and human health terms, the release of Terminator technology could represent a final sentence in terms of the total dependence of farmers on transnationals and the total control of the latter over agricultural and timber production in our countries, leaving the fate of our agriculture, our farmers and our food at the mercy of their economic interests.

The impact will be felt by the entire country, because it is a question of food security. Everything will be in the hands of a half dozen corporations in the world that dominate this technology, which places millions of people under dependency on this technology, and they are going to do whatever they want. We have never needed this; if we have managed to get to where we are today, it is because

the way things have always been done, naturally, was the right way.(Family farmer, Santa Catarina)

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**The testimonials were taken from the video "Terminator: sementes transgênicas da morte" (Terminator: Transgenic seeds of death); to acquire the video, contact:* julianperez7@gmail.com