
DANGER:
GE TREES

**Danger: GE Trees**

World Rainforest Movement
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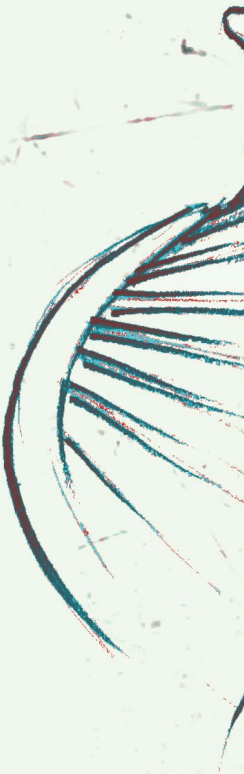

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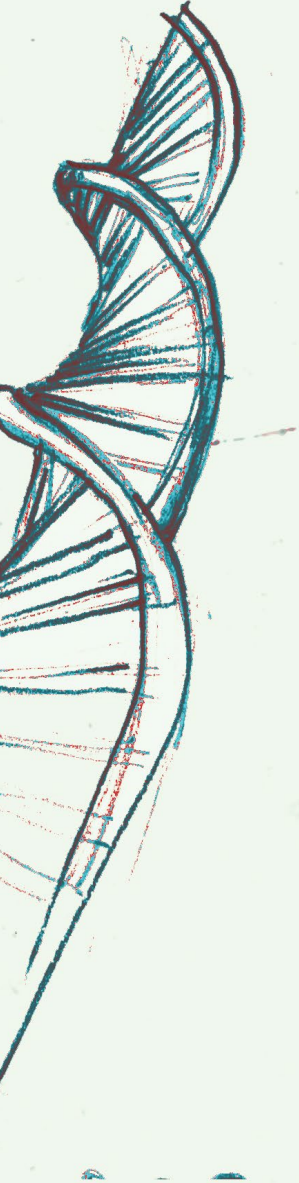


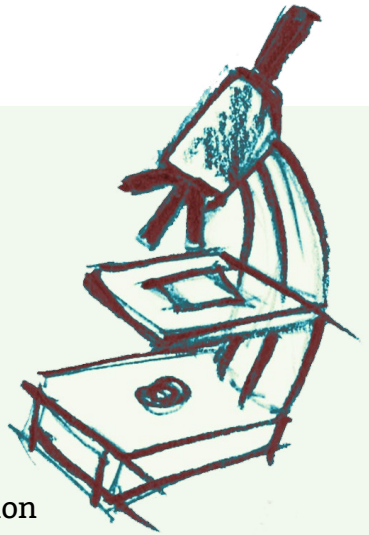
# Introduction

In several parts of the world, pulp and paper companies are attempting to plant Genetically Engineered (GE) tree species. But what are **genetically engineered trees, genetically modified trees** or **transgenic trees**? And what are the risks of planting them on a large scale?

In this booklet we share basic information about GE trees, in particular about seven varieties of eucalyptus trees that have already been approved in Brazil. Brazil is the first country besides China to approve the large-scale use of GE trees.

This booklet will show that the advance of GE trees will further aggravate the many problems and conflicts that are already caused by industrial tree plantations, and which are affecting indigenous, traditional and peasant communities. This is yet another reason to say NO to green deserts of eucalyptus and other tree monoculture plantations!

# What is Genetic Engineering?



Genetic modification (GM) is a term commonly used for genetic engineering or GE – it is the artificial introduction in a laboratory of new characteristics to an organism by making changes directly to its genetic makeup, e.g. DNA, through intervention at the molecular level.

Scientists can change the traits of organisms by inserting pieces of DNA, whole genes, or long stretches of assembled DNA segments originating from different sources. The inserted genetic material is often derived from unrelated species that would never breed in nature, but it can also be taken from the same or a closely related species, or be newly made up. Scientists can also change traits by disrupting genes, deleting or swapping small DNA segments, or introducing genetic material to silence genes. (1)

Agribusiness and the pulp and paper industry use these techniques to introduce new traits into trees and other crops (including corn, soy or wheat), such as resistance to herbicides or the capacity to produce toxins to defend against pests. Because it is such a controversial and risky technology, it has caused protests in Brazil and worldwide.

## Why do companies promote GE trees?

Wood from trees is the raw material companies use to manufacture pulp and paper. Therefore, the companies' goal is to maximize profits by producing the largest amount of wood in the shortest possible time.

Companies see another way to achieve this goal through the manipulation of the genetic material of eucalyptus; they can engineer new, unnatural traits such as accelerated growth, tolerance to herbicides, or resistance to water scarcity.

## What types of GE eucalyptus have already been approved in Brazil?

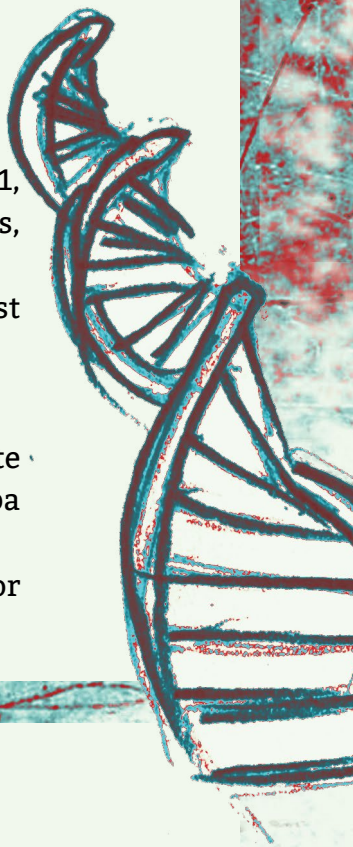
Brazil is the first country in Latin America to authorize the commercial planting of GE trees.
Since 2015, at least seven types of GE eucalyptus have been approved (2):

- A eucalyptus tree with manipulated DNA which, according to the company, can guarantee a 20% increase in the tree's productivity. This was approved in 2015 at the request of FuturaGene, a company owned by the multinational Suzano
- Five eucalyptus trees resistant to herbicides like the agrochemical glyphosate, an herbicide commonly used in plantations to eliminate all unwanted plants. Wherever it is applied, glyphosate contaminates water and causes serious health problems. These eucalyptus trees were approved between 2021-2023, once again in response to an application from Suzano.
- A eucalyptus tree with insect resistance, approved in 2023, again at the request of Suzano.

## Is GE eucalyptus already being planted?

Following a request for information made in 2021, about the first two approved GE Eucalyptus trees, the Federal Government of Brazil reported that Suzano is not yet planting at a large scale the first GE eucalyptus, which was approved in 2015.

Regarding the second type of eucalyptus, the company conducted field tests in Açailândia (state of Maranhão), Caravelas (state of Bahia), Angatuba and Araraquara (state of São Paulo) without informing local municipalities or communities or regional civil society.



## Why do GE trees pose serious risks?

- GE plants are a risk to diversity. When pollen from a GE tree contaminates a non-modified tree, it transfers genes that the second plant would not naturally have, causing **irreversible damage**. Contaminated trees can then contaminate more trees in an endless cycle.

- Large areas of land planted with genetically identical plants **drastically reduces biodiversity**.

- Just like GE soy or corn, these trees have been approved **without any knowledge of their possible impacts on health and the environment**. The Brazilian State

has authorized their use without conducting its own studies; it has only taken into account studies carried out by the corporation that manufactured and seeks to commercialize the GE tree in question.

- Trees are less domesticated plants with very long life cycles. Because of this, **there is a serious lack of research on long-term effects**. In particular, there is a risk of irreversible consequences to the biodiversity of forests – whose complexity is poorly understood.

- By approving GE eucalyptus, the federal government has blatantly violated **the precautionary principle** emphasized in international conferences on biodiversity conservation, in which Brazil participates and to which it is a signatory. The principle states that even if they cannot state with certainty that GMOs cause harm to health or the environment, States must suspend authorization to prevent irreversible negative effects.

- More productive GE eucalyptus will aggravate the **impacts on soil fertility**. They would also be a **"super consumer" of water** and increase the degradation or disappearance of streams and rivers in the places where it is planted on a large scale.

- Despite Suzano's argument in 2015 that the approval of a more productive GE eucalyptus would require less land, making more land available for food production, **the company's area under cultivation almost tripled in size** from 2015 to 2020, exceeding 1.3 million hectares.

- **Glyphosate-tolerant** GE eucalyptus creates **green deserts** with even less space for other species than current monocultures. Moreover, “weeds” (spontaneous plants) have been shown to develop resistance to the uncontrolled use of glyphosate, which means that it must be applied more often and at higher doses—which is exactly what was discovered in Brazil after the approval of glyphosate-resistant GM soy in 1998. This pesticide **contaminates the soil, water and air, and causes health problems** for plantation workers and surrounding communities. Neurotoxicity, cancer and damage to the respiratory and endocrine systems are associated with exposure to pesticides.

- Because eucalyptus is one of the main sources of pollen for the 350,000 honey producers and beekeepers in Brazil, another serious risk is the inevitable contamination of honey with traces of GE pollen, with unknown effects on human health. Additionally, glyphosate is known to have serious impacts on bees.

## Who authorizes the planting of GE trees in Brazil?

The National Technical Commission for Bio-safety (CTNBio) is the Federal Government agency responsible for approving requests from companies to allow the cultivation of GE crops (soy, corn, cotton, sugar cane, eucalyptus) or any living being that may be genetically modified (bacteria, yeasts, mosquitoes etc).

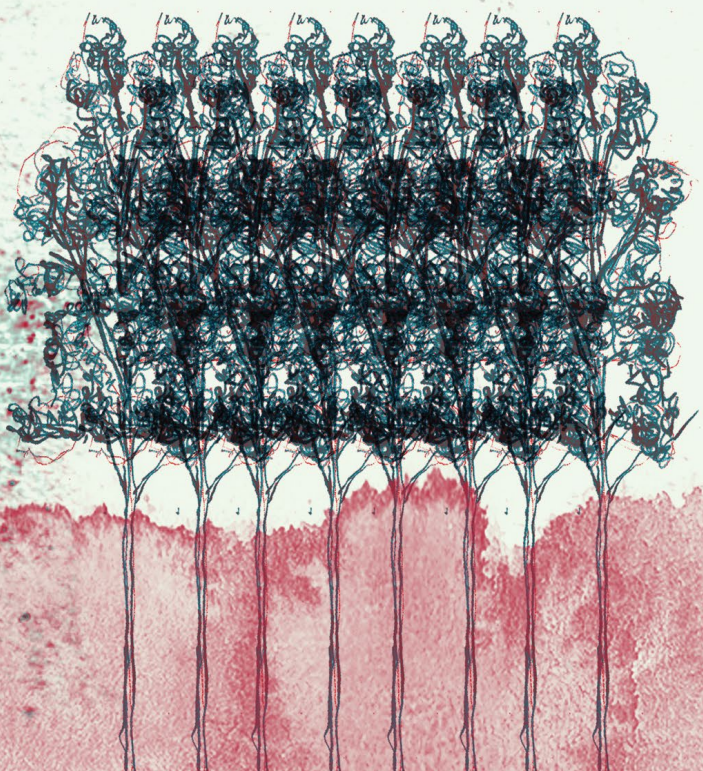
CTNBio is based in Brasília and is made up of experts from different areas and representatives from several ministries.

## How did the assessment and approval process of GE eucalyptus take place?

CTNBio's approval of the seven eucalyptus trees draws attention because of the speed with which these processes took place.

In the first case, in 2015, it did not yet have a specific assessment protocol for GE trees and used the one for GE soy, even though they are completely different crops.

In the second case, in 2021, it is worth noting that the CTNBio issued a favorable opinion based only on studies



presented by the company itself.

It is also worth highlighting that both the approval and the field tests for the seven GE eucalyptus trees approved so far in Brazil took place without any democratic consultations with Brazilian society, in particular without the social groups that historically suffer the greatest consequences of the expansion of agribusiness – such as indigenous, *quilombola* and peasant communities in the regions where Suzano plants its eucalyptus.

The CTNBio also failed to consider all the serious and well-known impacts of the large-scale eucalyptus monoculture plantation model. In the case of Suzano, this is a vast socio-environmental liability that worsens with each passing year, particularly in relation to land conflicts caused by the land grabbing. These conflicts involve Pataxó indigenous populations, *quilombolas* and landless families in Bahia and Espírito Santo states, and babassu nut breakers in Maranhão. Suzano's activities also cause devastation of the Atlantic Forest and, more recently, the Cerrado – which is currently the biome most devastated by Brazilian agribusiness.

These and other details point to the fact that the CTNBio is dominated by business interests. In its current configuration, critical voices always have a minority position.

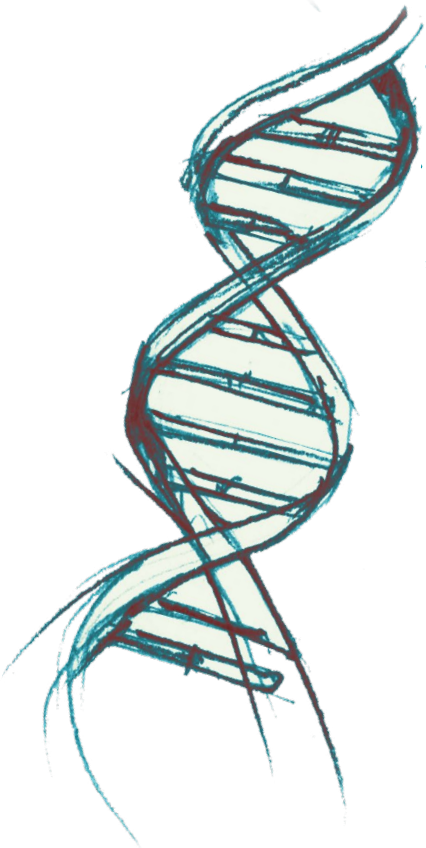
## Which companies are doing research in Brazil to plant GE eucalyptus?

There are nine companies that together have registered dozens of research processes at the CTNBio, including field trials, with a view to commercial approval of GE eucalyptus in the country. Suzano/FuturaGene holds the largest number of licenses for field trials (36), followed by International Paper do Brasil Ltda (19): (3)

- FuturaGene (Suzano subsidiary): 25 licenses
- International Paper do Brasil Ltda.: 19 licenses
- ArborGen Tecnologia Florestal Ltda.: 13 licenses
- Fibria Celulose (owned by Suzano since 2019): 8 licenses
- Stora Enso (co-owner of Veracel Celulose with Suzano): 5 licenses
- Alellyx Applied Genomics: 3 licenses
- Suzano Papel e Celulose: 3 licenses
- BIOAGRO – Federal University of Viçosa (UFV): 1 license
- Monsanto (owned by Bayer): 1 license

These licenses include, among other items, laboratory research and field tests on:

- growth/yield of GE eucalyptus
- tolerance/resistance to glyphosate and other herbicides under study
- resistance to insects and diseases
- wood quality
- tolerance to drought
- tolerance to frost
- use for biofuels.



## GE eucalyptus in other Latin American countries

For now, there is no information on purchases of GE eucalyptus seedlings or applications for approval in other Latin American countries with large eucalyptus plantations, such as Uruguay, Paraguay, Argentina and Chile. However, there is a real risk of this eucalyptus spreading to other countries, as has occurred with other GE plants.

Even though it is possible to find information about the processes through CTNBio's website, it is very difficult to obtain up-to-date information about the progress of each process.

Since this is a right guaranteed by the Access to Information Law, basic information on the processes should be fully available and regularly updated on the website.

# Actions against GE eucalyptus in Brazil


Protest at a CTNBio meeting in 2015.


Landless Rural Workers' Movement (MST) women's action at FuturaGene's facilities in São Paulo, 2015.


Delivery of a letter against the approval of GE eucalyptus at the Brazilian embassy in New Zealand, 2015.

## The Campaign to Stop GE Trees

The Campaign to Stop GE Trees is a North American and International Alliance of organizations that have united towards prohibiting the ecologically and socially devastating release of genetically engineered trees into the environment. The Campaign defends the protection forests and biodiversity and provides support to communities threatened by genetically engineered trees.

For more information: https://stopgetrees.org/about/

## The Alert against the Green Deserts Network


The Alert against the Green Deserts Network is a Brazilian collective of communities, social movements, organisations and activists, engaged in resistance struggles of communities and social movements facing the territorial impacts caused by big corporations from the pulp and paper sector and their monoculture plantations.

For more information:
https://alertacontradesertosverdes.org/

## References

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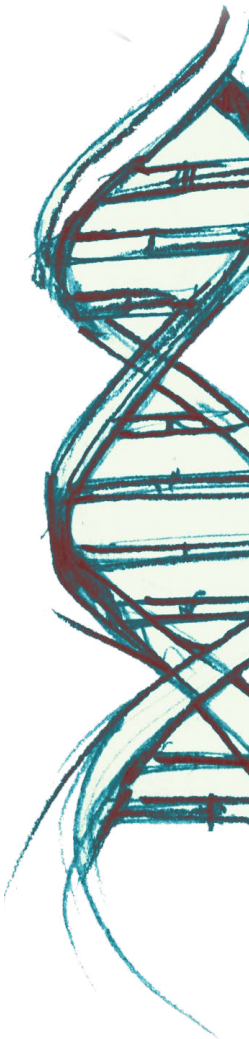


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