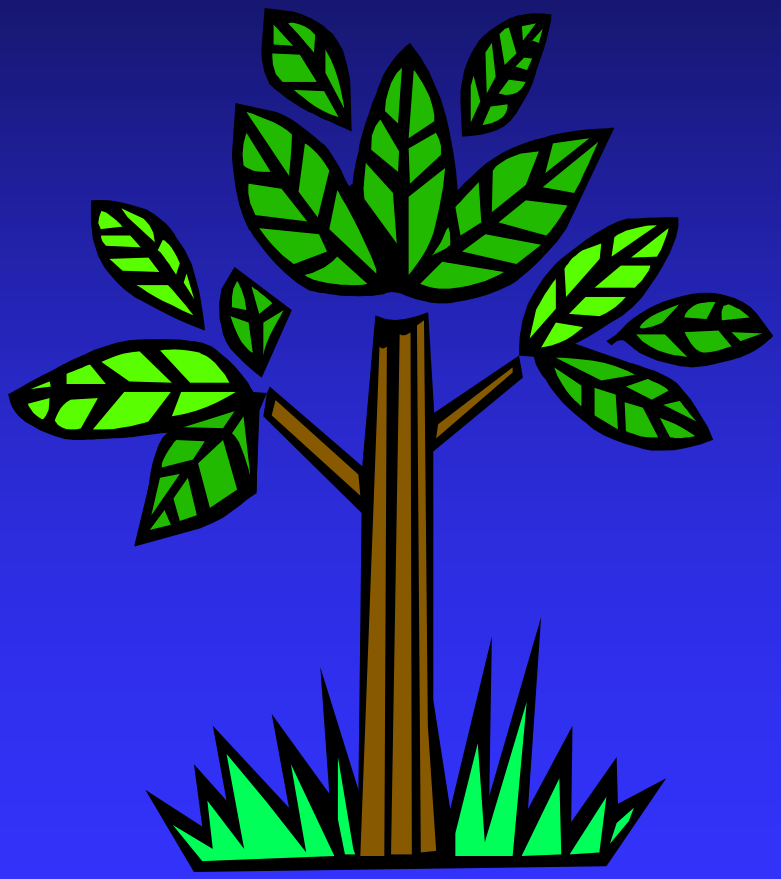
# GMO Tree (or any) Plantations Are Not Forests

**GE Trees and Wood-based Bioenergy:**
**Impacts on Forests, People & the Climate**

# GE Trees & Wood-based Bioenergy: Myths and Realities



## What species are being engineered?

The main species are:

- Eucalyptus (faster growth, cold tolerance, low lignin, herbicide tolerance) **Highly invasive, flammable and water greedy**
- Poplar (faster growth, low lignin, insect resistance, sterility, herbicide tolerance) **Widespread native populations/ contamination risk**
- Pine (insect resistance, improved wood quality, reduced branching) **Widespread native populations/ contamination risk**

# GE Trees & Wood-based Bioenergy: Myths and Realities

Myth:

Use of genetically engineered trees for wood-based bioenergy is a great way to fight climate change.

# GE Trees & Wood-based Bioenergy: Myths and Realities

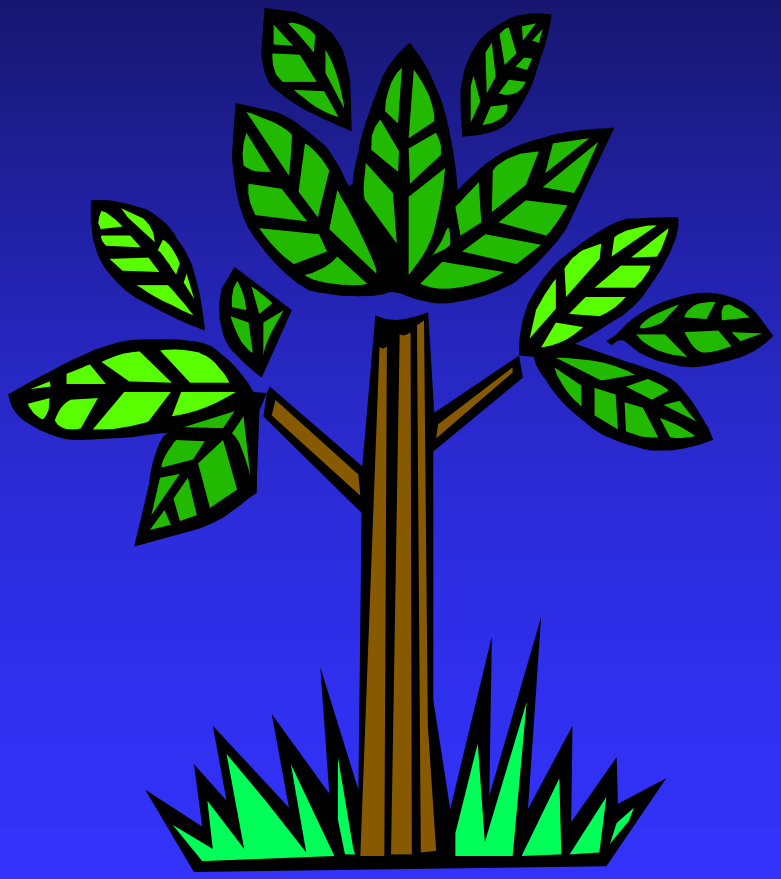
Reality:

Use of genetically engineered trees for wood-based bioenergy will exacerbate climate change by damaging forests, escalating deforestation, increasing conversion of forests to plantations, and due to the emissions caused by burning of wood.

• Currently, agrofuels made from trees use more fossil fuels to produce than is created.
• In addition, burning wood for electricity produces more emissions than coal.  It is NOT carbon neutral.

Photo: Hurricane Mitch mudslide, worsened by deforestation. Deforestation exacerbates global warming, which contributes to stronger hurricanes and storms, which destroys vast expanses of forest.

# GE Trees & Wood-based Bioenergy: Myths and Realities



Myth:

- Developing plantations of faster growing GE trees will take pressure off of native forests by growing “more wood on less land.”

# GE Trees & Wood-based Bioenergy: Myths and Realities

Radiata pine plantations in Chile

**<u>Reality</u>:**

- **GE tree plantations, like existing tree plantations, will *replace* native forests, not conserve them.**
- **Escape of GE trees into native forests will further damage forest ecosystems.**

# GE Trees & Wood-based Bioenergy: Myths and Realities

Myth:

- Making agrofuels out of wood will eliminate the competition between food and fuel.

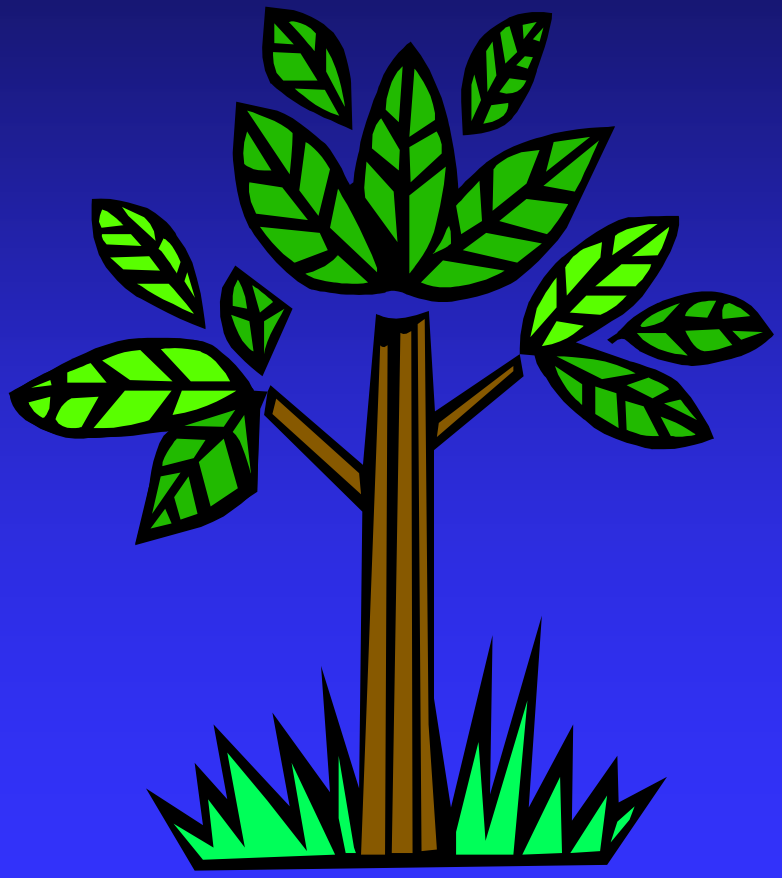
# GE Trees & Wood-based Bioenergy: Myths and Realities

Reality:

The pressure to make grow more trees for agrofuels and bioenergy means that both agricultural lands and forests will be taken over for tree plantations. This is already occurring in places like Chile.

In the Lumaco District of Chile, tree plantations have taken over more than 50% of the land. This has led to 60% of Mapuche communities living in poverty, 1/3 in extreme poverty.

# GE Trees & Wood-based Bioenergy: Myths and Realities



Myth:

- Insect-resistant (Bt) trees mean less toxic pesticides need to be applied.

# GE Trees & Wood-based Bioenergy: Myths and Realities

Native Araucaria forest in Chile

Reality:

- Use of Bt trees will contribute to the evolution of Bt-resistant super-insects, leading to use of more toxic pesticides.

- Escape of this gene into native forests will upset forest ecosytems for which insects are a critical part.

# GE Trees & Wood-based Bioenergy: Myths and Realities

Myth:

- Low-lignin GE trees will be the perfect feedstock for manufacture of agrofuels, plastics, chemicals and paper.

Faster growing GE trees will be the perfect source for biomass energy.

Reality:

- Low-lignin trees will have little resistance to wind, cold, disease or insects, meaning more chemicals will be needed to grow them.

Escape of this trait into native forests will lead to increased forest mortality, destroying biodiversity and worsening climate change.

Faster growing GE trees will have an advantage over native trees and be more likely to colonize native ecosystems.

# GE Trees & Wood-based Bioenergy: Myths and Realities

In addition, low lignin trees store less carbon in the soil and dead low-lignin trees rot faster, emitting carbon and contributing to climate change.

Researchers are also investigating ways to modify the lignin in trees in combination with insertion of engineered enzymes so that the trees may actually begin to digest themselves.

The massive increase in demand for wood caused by use of wood to manufacture energy will have serious consequences for the worlds forests and forest dependent peoples.  It will also impact the climate.

# GE Cold-Tolerant Eucalyptus
## The Next Disaster in the Gulf

One in five forested hectares in the US Southeast is covered by pine plantations. This region has been the world's leading producer of pulp for paper.

There is now a move to transform these plantations into GE cold-tolerant eucalyptus plantations as a source for bioenergy (agrofuels and biomass).

The USDA on May 12th approved the release of 260,000 GE eucalyptus trees across seven southern US states in so-called "field trials." Eucalyptus are notoriously invasive, flammable and water greedy.

If these GE eucalyptus are perfected, they will be exported around the world to regions currently too cold for traditional eucalyptus, expanding the disaster of eucalyptus plantations to new regions.

The GE eucalyptus was hybridized in Brazil, genetically modified in New Zealand and is being mass-produced and planted in the US.

Forest-dependent peoples are already paying the price for tree plantations. Many have been forcibly removed from their traditional lands, while others have lost their cultures, livelihoods, water, foods and traditional medicines.  Biodiversity has been devastated.

Increasing the global demand for wood and creating plantations of cold-tolerant eucalyptus will greatly worsen this problem.

# In Conclusion

**The massive increase in global demand for wood that will accompany the production of bioenergy from trees will contribute to escalating destruction of forests through:**

- Expansion of tree plantations and GE tree plantations into native forests and onto Indigenous lands.
- Escape of GE trees and their pollen and seeds into forests leading to destruction and displacement of biodiversity and communities.
- Higher rates of logging in forests (legal and illegal).
- Worsening global warming through deforestation leading to huge emissions of carbon and destruction of natural carbon sinks.

Risk assessments have not been done. The long-term consequences of large scale use of wood-based bioenergy and GE trees to replace fossil fuels some of the leading threats to forests and forest-dependent peoples in the world today.

# There is Good News!

GE trees have not been released in large plantations anywhere in the world except China, so for most regions, this is a disaster we can still stop. Groups are mobilizing worldwide.

On International Women's Day, 8 March, 2006 over 2,000 women from Via Campesina destroyed an estimated 8 million eucalyptus seedlings destined for plantations in Brazil. On International Women's Day in 2008, hundreds of women from Via Campesina in Brazil invaded eucalyptus plantations and destroyed eucalyptus trees.

# We must STOP GE Trees!

To download the report: The True Cost of Agrofuels: Impacts on Food, Forests, Peoples and the Climate, co-produced by Global Justice Ecology Project and Global Forest Coalition, go to:

www.globalforestcoalition.org/news andpublications/publications/

For more information on the dangers of GE trees, go to www.nogetrees.org

www.globaljusticeecology.org

www.globalforestcoalition.org.uy