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Genetically modified trees: A step forward . . . in the wrong direction

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[Back to contents](#)

The debate on Genetically Modified Organisms (GMOs) has until now largely focused on agricultural crops and much less on genetically modified trees. This is understandable, given the fact that there are already several GM crops being commercially grown in many places of the world and given that many of them are aimed at directly or indirectly feeding human beings, whose health is thus potentially threatened.

However, that does not mean that GM trees are less dangerous. On the contrary, the dangers posed by GM trees are in some ways even more serious than those posed by GM crops. Trees live longer than agricultural crops, which means that changes in their metabolism may occur many years after they are planted. At the same time, trees are also different from crops in that they are largely undomesticated and scientists' knowledge about forest ecosystems is poor. This implies that the ecological and other potential risks associated with GM trees are far greater than in the case of crops.

In spite of the uncertainties and potential risks, forestry scientists are busily playing with genes to “improve” trees. Of course, what they do in reality is to change some of the trees' characteristics to better serve the interests of those that fund their research, in order to improve the profitability of the businesses involved.

But from a biological perspective there is no improvement whatsoever. Is a tree with less lignin better or worse than a normal one? It is clearly worse, given the resulting loss of structural strength which makes it susceptible to extensive damage during wind storms. Is a herbicide-resistant tree an “improvement”? It is not, for it allows extensive herbicide spraying that affects the soil on which it stands, at the same time as it destroys local flora and impacts on wildlife. Is a flowerless, fruitless and seedless tree of any use to living beings? It does not provide food to myriad species of insects, birds and species that depend on these as food. Is a tree with insecticide properties an improvement? It is a dangerous hazard to many insect species, which are themselves part of larger food chains.

The fact is that genetically engineering trees constitutes a further step forward . . . in the wrong direction.

From an industrial profit-making perspective, forests have been consistently perceived as “untidy” and having “low productivity”. For many years, forestry scientists and foresters were thus assigned the task of “improving” them. The answer was to establish single-species plantations in straight rows and equal spacing so as to obtain the largest

possible quantity of wood per hectare. Forests are thus progressively being replaced by monocultural stands of timber.

Different steps have been taken to “improve” forests. The first step was to carry out research on appropriate trees for different environments and to select those having better qualities for the intended purpose: wood production. The UN Food and Agriculture Organization (FAO) played a central role in this respect, particularly in the case of Eucalyptus. Fast-growth, straight trunks, few branches and adequate wood for industry were some of the chosen qualities. The second step implied the adoption of the also FAO-backed entire Green Revolution package: mechanisation, herbicides, chemical fertilisers, pesticides. The following step was to carry out traditional genetic selection to “improve” the plantations’ performance in terms of wood yields, which was soon followed by cloning of the “best” trees. From that reductionist perspective, the obvious next step was to genetically modify trees.

It is precisely this large-scale tree monoculture model which is being increasingly challenged by local communities and organizations throughout the world because of its negative social and environmental impacts. GM tree plantations will only exacerbate those impacts. Water will be depleted more quickly by faster-growing trees; biodiversity will be further destroyed in biological deserts containing trees engineered to be insect resistant, flowerless, fruitless and seedless; the soil will be destroyed at a faster rate through higher biomass extraction, intensive mechanization and increased agrochemical use; more communities will be deprived of their means of livelihoods and displaced to make way for even more of these “green deserts”.

In spite of that, forestry scientists are pushing forward, not only at the laboratory and controlled trial level but also in the field as in the case of China, where well over one million insect resistant GM poplars have already been planted. No one knows the exact area planted with GM trees in China and what makes matters even worse is that it is very difficult to trace them, given that a GM poplar tree looks much the same as any other poplar tree. Additionally, poplar trees can be very easily propagated and GM trees are moved from one nursery to another. As a result, GM poplar trees continue spreading out of control.

Instead of stopping dangerous experiments such as this, the response of GM tree proponents is to use the same arguments of traditional plantation promoters that state that “plantations are here to stay, whether we like it or not.” by simply substituting the word “plantations” with “GM trees”.

That absurd and perverse type of reasoning can be applied to practically everything. It would mean that biodiversity loss “is here to stay”; water scarcity “is here to stay”, climate change “is here to stay”, poverty “is here to stay”, and gender inequity “is here to stay”. Whether we like it or not.

However, we –as most people- believe that things can change, precisely when people don’t like how things are. That is why governments agree on environmental conventions, human rights agreements, and covenants on Indigenous Peoples’, worker’s, women’s and children’s rights, to mention but a few.

In the case of the Convention on Biological Diversity, it is clear that GMOs in general and GM trees in particular, constitute a violation of the convention, which obliges governments to take a precautionary approach towards genetically modified organisms that may cause serious damage to biodiversity.

GM trees are also in violation of the spirit of the United Nations Forum on Forests (UNFF), which was set up to protect the world’s forests. It is clear that GM trees pose the gravest of dangers to forest ecosystems and that the UNFF should ban the release of GM trees.

What makes matters worse is that the Climate Change Convention has explicitly allowed the inclusion of GM trees within the framework of the Kyoto Protocol's Clean Development Mechanism. This means that this Convention not only supports the expansion of monoculture tree plantations supposedly to act as "carbon sinks", regardless of their negative social and environmental impacts, but allows those same plantations to be composed of GM trees, thus multiplying the impacts and adding new ones.

We therefore call upon all governments, especially the Parties to the Framework Convention on Climate Change and its Kyoto Protocol, to ban the release of GM trees.

The future is something that we build today. The world can go in one direction or another. It is up to us and not "fate", or genetic technicians, to decide. If we "don't like it" we can and must do something about it.

That is the aim of this book: to do something about this through information and analysis-sharing on the GM trees issue and to thus serve as a tool for people who are trying to steer the world in the right direction. Another world is possible ... whether the GM tree industry likes it or not.

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