

GMO CROPS AND THE RIGHTS OF NATURE

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Facts of the case :

Geographic location and context (as may be necessary to understand the case) .

The total area planted with GMOs in 2012 was 170 million hectares in 28 countries, but production was concentrated in : United States (69.5 million hectares) , Brazil (36.6 million hectares) , Argentina (23.9 million ha), Canada (11.6 million ha), India (10.8) and Paraguay (3.4 million ha).

The first transgenic crops worldwide were introduced in 2006 in the United States, Canada and Argentina , and have since continued to grow due to strong lobbying and pressure from the biotech industry , especially Monsanto .

Transgenic companies have launched two types of transgenic crops: soy (representing case 47% of the total planted area) , maize (32 %), cotton (15%) and rape (5%).

Behind genetic engineering an economic empire that radically changed the way agriculture is done in countries where GMO seeds were adopted rose. The main beneficiaries of this new technology is the company Monsanto (USA) , which companies DuPont (USA) , Dow AgroSciences (USA) , Bayer (Germany) , Syngenta (Switzerland) added .

How GMOs violate the rights of nature?

Ecuador 's Constitution (Art. 71) states that nature has the right to:

- That their existence is fully respected
- To maintain and regenerate its vital cycles, structure, functions
- Evolutionary Processes

We will analyze the nature assaults that occur at different times :

- Transgenesis and genetic manipulation
- The field release of transgenic seeds
- Consumption

THE GENETIC MANIPULATION AND TRANSGENESIS

The essence of genetic manipulation is to alter the structure of the DNA molecule . Using molecular biology tools , is inserted into the genome of a plant (for example corn) , genes from bacteria and highly infectious virus , and that through evolution , have designed mechanisms to be inserted into the genome of other organisms. These organisms are the result of two billion years of evolution.

The problem of transgenesis is producing organisms in the laboratory , violating the laws of biology that prevent foreign genes from infecting the genome of an organism. This influences both the evolutionary cycles of GMOs , as all organisms that could contaminate genetically , either through horizontal gene transfer , or through gene flow between transgenic and non-transgenic plants , or their biological relatives .

Through these new genes (which may come from other living organisms , but are also produced synthetically in the laboratory) , the DNA sequence (that is a molecule containing inheritable information) is altered. Here we have the first violation and a right of nature . At the molecular level, is altering the structure of nature.

By altering the structure of DNA , also alter their functions. Thus, almost 99 % of GMO crops are grown commercially have been manipulated to produce a protein that gives resistance to herbicides , or synthesizing a toxin with insecticidal properties , and thus "control " populations of some pests agricultural . That is, more of the function they have to produce starches or crop oils, now produce transgenic proteins .

RELEASE IN THE FIELD

Once GMO seeds are released to the environment, many impacts will occur in living organisms that are part of the agroecosystem as a result of altering their genetic structure, which has led to changes in the functions of the crop.

For example , crops that produce their own insecticides (known as Bt crops) , not only will affect pests, but other beneficial insects . In areas where GM crops are produced on a large scale , have started to decline in bee populations , which most of its importance in the economy and local communities , play an important role in plant pollination . Just as bees, other insect species that act as biological control agents or that play important roles in the ecological balance also disappear . Therefore occurs damage ecological cycles.

Crops resistant to glyphosate produces two types of impacts :

- Costs associated with transgenesis
- Produced by the technology package that promotes

Glyphosate interferes a major metabolic pathway : the shikimic acid . From this route many aromatic compounds that give protection to plants occurring (for example against the growth of tumors , infections , etc. .) .

Crops resistant to glyphosate also interfere with this metabolic pathway . That's why once in the

environment , soils on which these crops are grown are poor in some beneficial bacteria (such as Pseudomonas , which help the absorption of some trace elements) , and promote the growth of pathogenic fungi example Fusarium or Pythium . In the case of leguminous plants (such as soybeans) , severely affecting the bacteria associated with their roots fix nitrogen , an essential element in the metabolism of soy. Occurs therefore strong impacts on biological cycles such as the nitrogen cycle , Manganese , and long-term impacts on the food chain .

The impacts from the technology package : GM crops with herbicide resistance (which at the time are the majority, as companies " stacked " genes for resistance to herbicides and insects in the same plant) , are designed to increase the use of these pesticides.

The advantage to large producers is that they save on labor during removal of invasive plants (also called weeds). Weeding must be done manually , as the agrochemicals kill invasive plants , but also to the culture. But with herbicide-resistant crops, this is no longer a problem , so ideal for aerial spraying model is presented . Glyphosate will damage the natural vegetation in surrounding areas to crops, soil microorganisms , in both wild and domestic animals and workers involved in agricultural activities and populations living in areas influence crop .

But aerial spraying them only make sense in large areas. Much more so when the model has been implemented in production areas of GM crops have adopted technologies such as no-till and precision agriculture , which requires expensive machinery, and whose investment makes sense if applied to large areas . That is why in countries where GM crops have been approved , they will have expanded exponentially at the expense of the disappearance of forests and other natural ecosystems as well as the substitution of crops for food sovereignty.

CONSUMER

Over 75% of GM crops are used to feed farm animals that are raised in deplorable conditions. Transgenic proteins in animal feed (and eventually the food) , can generate a series of health problems, the same that are documented with increasing frequency in the scientific literature .

FUTURE IMPACTS

It is very difficult to say what might be the impact of transgenesis in the future, given the nature of these organisms. Genetic modification can produce long-term impacts , these can be cumulative in nature and establish synergies with other environmental agents (such as pesticides) .

What if you can predict is that since transgenesis is a very poor technology , has already produced many problems such as the emergence of so-called "super weeds" , ie invasive species that have developed resistance to glyphosate. The response has been producing new transgenic herbicide resistance more potent as 2,4 D (a component of Agent Orange , a defoliant used in the Vietnam War) , and other highly toxic herbicides to human health and the environment . Super pest also arise , and it is proposed to produce crops containing genes apliados several Bt toxins mean, what we offer is more technology, and increasingly dangerous . It also raises interfere with other heritage related organizations (such as gene silencing through RNA interference manipulation) steps , whose impacts are not yet understood , but

could be even more dangerous than recorded in crops GM first generation .

THE ROLE OF EXECUTIVE FUNCTION IN THE PROMOTION OF GMO CROPS

The 2008 Constitution provides:

Article 401 - . Declared Ecuador free of crops and transgenic seeds. Exceptionally and only if duly informed of national interest by the Office of the President and approved by the National Assembly, may be introduced genetically modified seeds and crops.

le , first entering transgenic crops and seeds are prohibited, and secondly, the possibility that the Executive 's approval for reasons of national interest is opened.

What are the reasons of national interest ?

This is also answered by the Constitution :

- Sumak Kawsay or good living, which means a harmonious relationship of human societies to each other, and these with nature , which is not possible with the expansion of GM crops , which violate this harmonic relationship.

- Food sovereignty is the right of peasants to control its production process (which is not possible if they can not decide on their seeds - on all transgenic seeds weigh intellectual property rights in favor of the 5 transnational corporations above, or on the technology package) . It also includes the right of consumers to have access to safe , culturally appropriate , preferably from family farming (which neither meets GM) foods, and states to establish their own political power . If this form of agriculture is controlled by a handful of companies , the state can hardly exercise sovereignty

- The plurinational and intercultural objective can not be met with GM seeds that displace traditional cultures of indigenous peoples and rural , black and Montubio communities.

However, even for reasons of national interest could be introduced in our fields any GM . This is made clear in Article 15 of the Constitution:

Development, production , possession, sale , import, transport, storage and use is prohibited

experimental technologies and harmful biological agents and genetically modified organisms harmful to human health or that threaten food sovereignty or ecosystems.

Additionally , Article 401 adds that :

The application of risky or experimental biotechnology is prohibited.

The Article 73 reinforces the protection of nature against these (and other agencies) harmful as follows :

The introduction of organisms and organic and inorganic material that can alter in a definitive way the national genetic patrimony is prohibited.

That is, even if the president decides that the national interest is releasing GMOs in the country , they cannot transgenic :

- Sean adverse human health
- That threaten food sovereignty
- That threaten ecosystems
- You can alter in a definitive way the national genetic heritage
- They are experimental , harmful or hazardous

Given the nature of GMOs , all meet at least some of these requirements , therefore , would be prohibited in Ecuador .

For other types of biotechnologies (other than those used in genetic engineering) , the Constitution in Article 401 and 281 (9) says:

The State shall regulate under strict biosafety standards , the use and development of modern biotechnology and its products as well as experimentation , use and marketing .

Despite the constitutional clarity regarding GMO crops , the executive through the Ministry of Environment takes a public advocacy on these .

Consider for example the following wedge that circulated in the third quarter of 2013:

A day in the life of two corn ...

Choclo 1: Oh, this worm is killing me ,my poor grains !

Cholo 2: I do not care about that, to me the worms do not bother me

Choclo 1: Really? Why ?

Cholo 2: Because I'm a transgenic corn

Choclo 1:Ah ! You half corn and half fish

Cholo 2: Noooo look at me I'm a whole corn , only now the worms can no longer hurt me

Choclo 1: I hear you're dangerous

Cholo 2: There are risks to be here but I have been through many controls and scientific studies

Choclo 1: Do you know other GM ?

Cholo 2: Yes , I have friends like beans in Brazil , maize in Mexico and some vaccines in Cuba

Choclo 1: Ummhhow interesting ! And I can learn more ?

Cholo 2: Clarooo ... check www.bioseguridادةcuador.gov.ec

Ministry of Environment are moving Patria!

If you visit the website of the Ministry of Environment, the Ministry notes that that protection from GMO is is part of the Cartagena Protocol , not just the Ecuador Constitution. (The **Cartagena Protocol on Biosafety** is an international agreement on biosafety, as a supplement to the Convention on Biological Diversity. The Biosafety Protocol seeks to protect biological diversity from the potential risks

posed by genetically modified organisms resulting from modern biotechnology.)

Ecuador ratified its participation in the Cartagena Protocol on Biosafety (Biosafety) of the Convention on Biological Diversity (CBD) , whose primary purpose is to ensure adequate protection in the field of the safe transfer, handling levels , and safe use of living modified organisms (LMOs) resulting from modern biotechnology.

But it says that the Constitution forbids . It is true that the Cartagena Protocol was signed by Ecuador before it enters into force the current Constitution. What happens in those cases? . In this regard the Constitution says:

Article 417 - .

International treaties ratified by Ecuador is subject to the provisions in the Constitution. In the case of treaties and other international human rights principles apply pro human, no restriction of rights , direct applicability and open clause enshrined in the Constitution .

REPEAL PROVISION

The Constitution of the Republic of Ecuador published in Official Gazette number one on August 11, 1998 , and any rules contrary to this Constitution shall be repealed. The rest of the law will remain in effect as it is not contrary to the Constitution .

And if any doubt still remain , Article 395 (4) says:

If in doubt about the scope of the legal environmental provisions , they shall apply in the most favorable to the protection of nature sense.

The Ministry of Environment then does on its website , a promotion to GM

It is recognized that modern biotechnology could become an important alternative to contribute to food security , conservation and sustainable use of biodiversity , and human health. However, as in any application of recent technology , need to be considered alongside safety measures to avoid or reduce potential risks involved in the transfer, handling, use and release of these LMOs and their products on the environment , biodiversity , human health and socio-economic structure. This practice is commonly called the " biosecurity" .

On the other hand , the National Plan for Good Living 2013 - 2017 , includes among its GM policy . All the target 7.5 . relates to ensure biosafety, where plans are included in relation to transgenic crops and seeds :

The boost to bio-knowledge is closely linked to the implementation of clear policies governing biosafety activities in the management or manipulation of living organisms could cause dangerous situations for plant or human, animal , environmental (Crespo, 2009). The Constitution declares Ecuador free of transgenic crops and seeds, and gives the state the power to regulate under biosafety standards , the

use and development of biotechnology and its products (art. 401). Through the National Biosafety Framework project , the Ministry of Environment has been made in the generation of proposals to strengthen the regulatory and institutional framework concerning biosafety in accordance with the Cartagena Protocol on Biosafety (2000), signed by Ecuador in 2000 and in force since 2003. (Senplades , 2013: 232)

This paragraph that part of policies to enhance the bio-knowledge in Ecuador includes the development of transgenic (or genetically modified) organisms , ignoring the Constitution.

Among the policies and strategic guidelines PNBV include:

- Generate biosafety regulations based on the precautionary principle , to address and reduce the risks associated with the presence and use of living modified organisms, thereby tacitly , plan the release of transgenic organisms is supported
- To promote research , training and communication on these issues
- Develop policies to encourage the participation and involvement of communities, peoples and nationalities in handling biotechnology practices affecting their cultural and natural environments (Senplades , 2013: 235-236) .

Far more explicit is the proposed change in the matrix of the Ministry of Productive Agriculture, Livestock, Aquaculture and Fisheries. There is proposed to plant 50,000 hectares with GM soy and GM canola 20,000 hectares , which would be subject , according to the document , the adoption of legislation to legalize GMOs in the country says.

REQUEST OF THE ETHICS TRIBUNAL

Respect the Constitution of Ecuador in reference to GMOs.

Eliminate any possibility of introduction of transgenic organisms in Ecuador from public policy.

Implement administrative, legal and policy measures to keep in Ecuador as a country free of GMOs, and establish an accountability system if these measures are not met.

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