

Between 2001 and 2003, GRAIN commissioned a series of reports from various countries in Latin America to examine the takeover of food and farming by transnational corporations. This is the summary report from the project. What emerges is a picture of lost opportunity – a continent well endowed to be self-sufficient in food that is systematically giving up its food sovereignty to foreign corporate interests. In doing so, it is undermining food security across the continent.

A short history of farming in Latin America

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All human groups modify their environment in order to meet their needs. Of all human activities, farming presents the greatest conflict between satisfying our basic needs and maintaining the sustainability of the natural environment. Some types of farming impact the environment more than others. For several thousands of years in Latin America, highly diversified ecological farming systems evolved that fostered the sustainable use of resources. Different cultural groups developed various complementary cropping methods: maize, beans and squash in Central America; tubers, roots and maize in the Andes; and camote and yucca in the Caribbean. These practices have been progressively undermined by the influence of colonisation, modernisation and globalisation, which have replaced them with systems that encourage extractive processes and the mining of resources.

Latin America's natural and human resources could sustain its own long-term development. Some 23% of its land is suitable for farming and another 23% is tropical rainforest (almost half the world's tropical rainforests are found in Latin America). Some 13% of the surface area is grassland and the region holds 31% of the planet's available fresh water. Furthermore, it is home to rich reserves of renewable and non-renewable energy, and the wealthiest biodiversity on the planet. Of the twelve so-called 'mega-diversity' countries, five are in Central and South America: Mexico, Colombia, Ecuador, Peru and Brazil. Nevertheless, that wealth has not created the quality of life or environment for Latin America's peoples that it should. This is because governments have focused on a defective development model that has excluded the majority of people, especially over the last thirty years.

The origins of poverty in Latin America are complex, but its more recent roots lie in a long history of authoritarian governments insensitive to the need for social change; economic policy decisions based on the need for constant growth; the transfer of capital, human and natural resources from South to North; the exploitation of South America by the rich economies and a growing foreign debt imposed by the super-developed countries and their multilateral financial institutions in the 1970s. The arrival of democratic governments in the 1980s fostered a new debate at the formal level, but the inequities continued to grow. These inequities have been exacerbated by the neo-liberal policies implemented in almost all Latin American countries during the 1990s, and which have opened a much broader road for the export of plundered natural resources that pay for the growing demands of the foreign debt.

Money becomes the logic of farming

During this period, the agricultural sector – one of the most promising productive sectors of the region – changed dramatically. Large-scale, export-oriented production requiring the intensive use of chemical

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inputs started to dominate the agricultural landscape. This Green Revolution-style approach to farming started to suffocate the diversified local and self-sufficient farming practices of small and medium-sized farmers.

Traditional *campesino* culture had demonstrated a high degree of sustainability within its own historical and ecological contexts, and fulfilled the vital needs of the population even under adverse environmental conditions. Farming practices were built on sophisticated social, geographical and cultural frameworks, appropriate processing technologies, and a precise knowledge of resources, consumption and labour habits, all adjusted to the conditions of each locale.

These diverse farming systems fed millions of Americans five hundred years ago. Today they are largely relegated to the poorest 10% of agricultural land, yet they still generate 40% of the region's livestock and agricultural produce. In Central and South America, *campesinos* comprise up to 80% of the rural producers, and they supply 51% of the most important grain harvested in the region: maize. In at least seven countries (Brazil, Chile, Colombia, El Salvador, Guatemala, Mexico and Paraguay), *campesinos* are primarily responsible for their own food security. Nevertheless, their farming methods – so successful from a social and environmental point of view – have not received the support or the official backing of the governments.

Green Revolution agriculture has taken humankind's conflict with Nature to unprecedented levels. It promotes a farming model based exclusively on economic logic – maximising profits, increasing yields, and homogenising and concentrating production in ever fewer crops and varieties. The model is highly inefficient in ecological and social terms, and is only productive within an economic framework imposed by global capitalism that forces large areas of the world to transform great tracts of land for the non-diversified production of crops to feed livestock in the most developed countries. The Green Revolution, which has gripped most of the Latin American continent for thirty years, has certainly left its mark. Most of the important impacts have been negative, affecting habitats, landscape and biodiversity, food sovereignty and food security, and the lives of millions of people.

In the 1990s, the continent was confronted with a new twist to the Green Revolution model, with the introduction of genetically modified (GM) crops. The GM Revolution extends the logic of the Green Revolution from controlling the inputs (seeds and chemicals) to controlling the whole chain of agroindustrial activities from seed to supermarket packaging. Not only are farmers and *campesinos* everywhere affected by this ever more dominant force, but so are the consuming public, which is rapidly losing its freedom to choose what it eats. New technology, regulatory measures, patents and commercial agreements were the keys to introducing GM products in Latin America, and success has been varied.

GMOs sneak ahead of regulation

Argentina has allowed the most extensive introduction of transgenic crops and has rushed through oversight mechanisms for genetically modified organisms (GMOs), via its National Advisory Commission for Agricultural Biotechnology (CONABIA). CONABIA's explicit objectives in relation to GMOs include the “*minimisation*” of potential risks to human health, the natural environment and agricultural productivity; “*favouring*” technological development; assessing the safety and quality of the new products; informing public opinion; and following the international markets. Similar agencies have been set up in Ecuador, Mexico, Brazil, Uruguay, Chile, Bolivia and Colombia. Most of them have been more involved in matters regarding the promotion of the new technologies than with their regulation, largely ignoring integrated social-environmental impact studies (see Table 1). There have been no instances of broad-based public participation, nor are the decisions of the agencies submitted to review by independent researchers.



Table 1: The rules of the GMO game in Latin America - and who's playing

Country	Regulatory Body	Seed Industry Representatives	Agricultural Research Institutes	State of Legislation Governing GMOs	Dominant Companies
Argentina	National Advisory Commission for Agricultural Biotechnology (CONABIA)	Argentine Seed Producers' Association	National Institute for Agricultural Technologies (CONICET): www.inta.gov.ar	Decrees emanating from sub-ministerial level. No specific legislation	Monsanto Dekalb Cargill Nidera Don Mario
Bolivia	Biosafety Commission and National Seeds Committee	National Association of Oil Seed Producers and Wheat Growers (ANAPO)	Bolivian Institute of Agricultural Technology (IBTA)	National Biosafety Law with implementation problems	SEMEXA Aventis
Brazil	National Technical Biosafety Commission (CTNBio)	Brazilian Association of Seed Producers	Brazilian Enterprise for Agricultural Research (EMBRAPA) www.embrapa.br	Biosafety Law. Includes a section on environmental impacts	Monsanto Agroceres Cargill Braskalb Novartis Pioneer
Colombia	National Technical Council for Biosafety (CTN)	Colombian Association of Seed Producers	Colombian Corporation of Agricultural Research (CORPOICA) www.corpoica.org.co		
Chile	Advisory Committee for the Release of Transgenic Organisms (CALT)	National Association of Seed Producers	Agricultural Research Institute (INIA) www.inia.cl	Decree	Pioneer Cargill Agrotuniche Novartis ANASAC
Ecuador	National Biosafety Commission	Ecuadorian Association of Seeds (ECUASEM)	Autonomous National Institute of Agricultural Research (INIAP) www.ecuanex.net.ec/iniap/	The highest level: National Constitution, Art. 89, In. 3, regulates according to the precautionary principle	SENACA AGRIPAC and others
Mexico	La Comisión Intersecretarial de Bioseguridad y Organismos Genéticamente Modificados (CIBIOGEM)	Mexican Association of Seed Producers (AMSAC)	National Institute for Forestry, Agricultural and Livestock Research (INIFAP): www.inifap.conacyt.mx/ International Maize and Wheat Improvement Centre (CIMMYT): www.cimmyt.org	None. Only a general law on seeds	Monsanto SVS Mexicana Pioneer Aventis Calgene CIICA
Uruguay	CERV Commission RVGM	National Association of Seed Producers (ANAPROSE)	National Institute for Agricultural Research (INIA)	Decree	Pioneer Monsanto Novartis Nidera Syngenta Don Mario



These agencies' personnel and consulting structures include researchers from biotechnology research centres, industry representatives and other actors from the public sector and the trade associations, but there is very scarce representation and very little real participation by representatives from NGOs or government agencies charged with protecting the natural environment or the consumer. The existence of these risk evaluation committees is largely symbolic, and they tend to focus on establishing legal formalities and acting as guarantors against possible legal actions from the public. These agencies also now usually have a

public relations section whose mission is to explain "*the scientific basis for these processes*" (presuming that only the science is in question), but without opening a forum for public participation.

On the other hand, the Ministries of Agriculture in each of these countries are very actively involved with the bodies that certify and promote seeds. These entities were set up to adapt and implement the International Union for the Protection of New Varieties of Plants (UPOV) in order to expand the commercial seed industry and oversee the payments of patents and royalties. These bodies

and mechanisms are well established in Argentina and Brazil, and there is rapid development elsewhere. The strongest proponents of promoting and spreading the new transgenic seeds are the trade associations which defend and represent the interests of the seed sector in each of our nations. These organisations have the resources to carry out constant lobbying and operate with the support of huge transnational corporations, and heavily influence the decisions of the government agencies in charge of overseeing and certifying commercial seed.

Legal frameworks that are strong enough for the effective regulation of GM technologies and the powerful corporations behind them are sorely lacking. Just one nation, Ecuador, has included strict biosafety norms based on the precautionary principle for handling GMOs in the national constitution. Brazil also has specific legislation on biosafety that regulates the use of GMOs, but the other countries only have decrees and norms promulgated by their Ministries of Agriculture, Environment and others.

“Despite the amount of land grown to GM crops in Argentina, the country has no regulatory standards, nor has there been an open debate in Congress about legislation to oversee their introduction”

The case of Argentina is especially noteworthy because despite the amount of land already planted to GM crops, the country has no regulatory standards, nor has there been an open debate in Congress regarding legislation that would contain and oversee the introduction of GM crops.

Similarly, few countries have taken concrete steps on consumers' rights. Ecuador has passed a Consumer Protection Law which states the obligation to inform the public of GM ingredients in food products. The Mexican Penal Code recommends (but does not require) the labelling of food products, and Brazil's Consumer Protection Law recommends the labelling of GM products.

Consolidation gathers steam

The transnational agro-industrial corporations have created large conglomerates through buying out or negotiating collaboration agreements with companies in the agricultural and chemical sectors. In addition to buying up national companies, the transnationals are purchasing outright or partially investing in state-owned enterprises, often disguising the presence of the corporations in both areas. This is how the major economic groups in the seed and chemical sectors arrived in the region several decades ago, and have now expanded throughout Latin America.

Monsanto now holds a strong position in Argentina, Brazil and Mexico, and is experiencing

dramatic growth elsewhere. The circle is closed with the involvement of the world's major grain traders such as Cargill, Archer Daniels Midland, Bunge, Toepfer and Dreyfus, which operate and are expanding rapidly in the north as well as the south of the region. In Argentina, these five companies export 78% of the wheat, 79% of the maize, 71% of the soy flour, 95% of the soybean oil and 99% of the sunflower seed oil. The same is true all over the continent, showing how thick a slice of the world's exportable foodstuffs are in the hands of these companies, which have tremendous negotiating power.

To deal with public dissent over GMOs, the interested sectors have created their own media to promote the technology. The seed trade associations have established a variety of means for promoting the new techniques or have formed institutes to do so, such as the Argentine Biotechnology Forum and its counterparts in Mexico, Brazil and other countries.¹ Their arguments in favour of GM crops focus on increasing food production “sustainably”, ignoring social, economic and other environmental perspectives. Pseudo-scientific principles such as “substantial equivalency” are thrown into the pot, with the idea of treating GM production as no different from conventional production.

The international contribution to the debate is growing, with important financial support from UN agencies present in all South American countries through the World Bank's Global Environmental Fund. Nevertheless, illuminated by public debate and the increased activity of social movements, the importance of applying the precautionary principle is becoming clear in each country as we confront the unrestrained incursion of GM products.

In most countries, formal agricultural research has historically been linked with a process of technological modernisation that only benefited large-scale farmers. The research agenda of national agricultural research institutes – many of which have now been privatised – focuses largely on extensive cropping for export markets. Many of these institutes receive the direct benefit of a small percentage of the resulting export sales, which further skews their research priorities. In these agencies, as in the universities and public-private joint ventures, research is done on demand, which is dangerous territory for determining research and development policy. It is a flagrant risk, bordering on irresponsibility, that the scientific agenda of our research institutes be defined by one sector to the exclusion of others, and that debate and public participation are not permitted to influence the policies of our respective countries.



¹ www.porquebiotecnologia.com.ar/

The many ways in which GMOs have made their way into Latin America

Mexico: Cotton and soybeans are being handled at a "pre-commercial" level, but about 300,000 hectares have already been planted. Planting GM maize is prohibited because Mexico is the centre of origin of the crop, but trade agreements with the US (particularly the North American Free Trade Agreement) have put the country at serious risk by setting high import quotas for US maize. This imported GM maize is meant for consumption only, but farmers all over the country have planted it.

Colombia: A net importer of (GM) maize and soybeans from Argentina and the US. GM crops being pushed for commercialisation are coffee, sugarcane, yucca, maize and cotton. Large areas of land are treated with glyphosate herbicide. There are nearly three million refugees from the war, mostly *campesinos* who have lost their land.

Ecuador: No commercialisation or field trials of GMOs. One means of entry of GM maize and soybeans are imports from the US and Argentina, others are food aid programmes promoted by the US (USAID) and the World Food Programme. The *Mi Papilla* and *Mi Colada* products for children distributed through these programmes have been found to contain GM soybeans.

Brazil: GM crops were initially prohibited because of inadequate environmental impact assessments. But corporations created a black market for illegal GM soybeans from Argentina ("*Maradona*" variety) to inundate the Brazilian market. They were so successful in flooding the market that 'approving' the release of the soybeans for became a non-issue and the government agreed to allow the sale of the illegally grown Roundup Ready soybeans. GM soy may be used in the Zero Hunger Campaign.

Bolivia: The commercial introduction of GMOs has not been authorised. But glyphosate-resistant soybean products enter the country from Argentina, particularly via Santa Cruz de la Sierra in eastern Bolivia. Another means of entry is via international food aid programs like the World Food Programme.

Chile: 99% of the GM crops are grown without a biosafety quarantine (maize, soybeans, tomatoes, etc.) GM soybean and maize products are also being imported from Argentina and the US. There is talk of Chile becoming a production centre for GM seed for planting in the Northern hemisphere.

Uruguay: The major seed corporations are operating as in most of the other countries of the region. Commercial release of Roundup Ready soybeans has been authorised and there is a debate about the introduction of Bt maize. Uruguay maintains a strategic policy that favours the release and sale of GMOs throughout the region.

Argentina: This country has gone the farthest in embracing transgenic crops (soybeans, maize and cotton). There is a strong alliance between private institutions and government agencies to facilitate the spread of GMOs. New trade associations (like AAPRESID) are firmly integrated into the intensive production model. Another way of making inroads has been the promotion of national food aid programs, like *Soja Solidaria*, involving the free distribution of GM soy products among the poorest sectors of the population. Pro-GM trade associations promote the programs, together with other institutions such as CARITAS.



Many entry points for GMOs

The existence of loose and short-sighted regulatory frameworks and the establishment of bodies supposedly charged with the institutional oversight of GMOs has made easy passage for transnational corporations to introduce several transgenic crops to Latin America, both commercially as well as in field trials. More have arrived as imported foodstuff for public consumption or as food aid. More than thirteen million hectares of transgenic crops have been planted in Argentina alone (Round Up Ready soybeans², Bt maize and Bt cotton in particular), while in other countries there is an on-going process of analysis, field trials or greenhouse production, like the blue carnation which is sold in Ecuador or Colombia, and tomatoes in Mexico. Andean countries are experiencing an intense push to spread cotton and maize. Transgenic soybeans have been available for several years in Uruguay, and Bt maize has also been approved, albeit in the face of increasing public resistance.

“Policy makers must remember that it is the large, rural campesino population that is the real source of the food consumed in the region”

The widespread genetic contamination of America's most important food crop – maize – occurred in its centre of origin, Mexico, even in the face of a ban on planting GM seeds. Bolivia could soon suffer

a similar fate with respect to potatoes, since one of the institutions involved in promoting the introduction of GM potatoes is also the custodian of potato germplasm. Bolivia, together with Peru, is the centre of origin (original source) of the potato, and its most important centre of diversity.

Food aid has been instrumental in undermining food sovereignty in the region and spreading the GM cancer. The World Food Program has widely distributed GM food in Ecuador without public knowledge or consent. GMOs, especially glyphosate-resistant soybeans, were found in children's food (“*Mi Papilla*” and “*Mi Colada*”). In Argentina, a national programme was initiated to promote the consumption of GM soybeans among the poor, especially children, known as “*Soja Solidaria*” (Solidarity Soybeans). Argentina has historically produced an abundance of food, and the need for a programme of this kind was a direct result of the country's devastating economic crisis, which in turn was generated by strict observance of the neoliberal economic model during the 1990s. The food aid programme was the work of groups committed to the widespread introduction of GM crops in the country, such as the Argentine Association of Farmers for Direct Planting. In response to strong public protest, the government has since reduced its support for these programmes.

Time for some sober reflection

Hard as it is to believe, most countries in the region are worse off in terms of food security than they were 40 years ago. Some that were previously self-sufficient in basic foodstuffs have become net importers of food, including maize – our basic food! In Colombia, Mexico, Uruguay and Bolivia, the rich variety of the foods produced for local consumption has been greatly reduced. In Argentina and Brazil, the focus is on export markets to the detriment of local sustainability. It is disappointing to note how all of Latin America, in accordance with the political decisions taken by the respective national governments, has moved farther and farther from a position of security regarding the management of its food to become dependent exclusively on the commercial decisions of the transnational corporations that dominate agriculture. Now the food sovereignty of the whole region is at risk.

The examples of Argentina and Mexico should prompt us to review the means of evaluating the real impacts of a tremendously powerful technology that influences the natural environment as well as the societies where it is introduced. Argentina permitted the expansion of the GM crops throughout its own territory, while Mexico allowed the full-scale importation of food from the US. Both strategies have resulted in the systematic elimination of jobs for small and medium-sized farmers. The process of introducing GM foods has taken different forms in different countries in Latin America, ranging from advertising by business interests that compete on the international level, to feeding the poor with the surpluses of the agro-industrial process, to importing of GM foods from abroad (see map on p 9). It's no wonder that people who can see what is going on are outraged. Why should a homogeneous system be installed in our countries that is only of interest to certain export sectors and has no real social benefits?

The conclusions of the regional reports make it clear that transnational corporations have weaselled their way into a position of tremendous power with respect to agriculture and food. In every country, this has led to the privatisation of commercial farming in very few hands, most of them foreign. The enormous social costs incurred, the increased poverty and joblessness, food dependency and the lack of opportunities in the traditional rural context should make the political authorities rethink the situation and remember that even today it is the large rural, *campesino* population in Latin America that is the real source of the food consumed in our region. Argentina has lost 30% of its farms in the past few years, in a process of concentration that is being repeated in almost all countries.



² Soybean plants that have been engineered to resist the herbicide glyphosate.

The penetration strategies that have effected this change in South America are characterised by a policy of *fait accompli*, with GMOs fed to the poorest sectors of the populations and transgenic seeds placed in the hands of farmers, often for free. Argentina expanded its export-oriented agriculture, favouring the concentration of ownership and the emigration of rural populations, and now feeds part of its own population with the GM soybeans that it produces. Uruguay is encouraging the planting of GM crops, Chile the production of GM seeds, Brazil is struggling to deal with being flooded with Argentine GM soybeans, while Ecuador receives GM food aid from the US.

The objective of the corporations is to extend their business to the extensive, integrated geography shared by Argentina, Brazil, Bolivia, Paraguay and Uruguay (known as the Southern Cone), where the quality of the land and the navigable rivers make export relatively easy and enormously profitable. The Paraguay-Paraná barge route is being designed exclusively with that objective in mind, without any consideration for the serious environmental, social and economic consequences that could result. Poverty is still on the rise.

The agricultural research and extension institutes and national agencies have largely adopted the lines that favour extensive production and export-oriented farming, and the only people raising the alarm are environmental NGOs, some independent research and scientific groups, and the organisations of small farmers and consumers in some countries. In Bolivia, the anti-GM movement, led by farmer/*campesino* organisations, achieved a government moratorium on the entry of GMOs into the country in 2001. Groups opposing GMOs are calling on governments to support sustainable production methods and to rescue local production rooted in agro-ecological systems, which have proven to be sustainable, productive and economic during periods of crisis in the past and which we may face in the future.

These agro-ecological systems return the ways and means of production to the farmers. Their success, proven independently and scientifically, is beginning to be recognised as a viable, productive alternative that is growing in the face of the industrialised agricultural model. In terms of technology and the delivery of information, and with very limited resources, national programs are beginning to show important results. For example, INTA's ProHuerta programme in Argentina, and EMATER, a regional technical institution in Brazil, have been very successful in promoting and providing support for household gardens and the sale of healthy,

inexpensive, organic food grown according to well-proven agro-ecological methods that require very low investment.

The main demands of the millions of small farmers responsible for the majority of agricultural production in Latin America favour the implementation of agricultural policies that are consistent with and adequate for their own needs. Their message is simple: the GM crops developed to date do not provide solutions for the small family farm. The evaluation of a new technology and its risks should necessarily involve providing information about all the possible alternatives, as well as a comparative analysis of the benefits, risks, means of distribution and the variety of possible solutions. The evaluation should involve broad, complex and holistic criteria that our authorities are still unaware of or prefer to ignore. 2

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