

Food Dictators won't feed the world – they are part of the problem

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Summary

Genetic Engineering (GE) has nothing to do with feeding a hungry world. The contrary is the case. Argentina, number two producer of GE crops and the only developing country growing GE food crops on a large commercial scale, shows that GE has led to a massive concentration of wealth and revenues in the hands of a few companies. GE crops have contributed to further impoverish small scale farmers and the poor.¹

The main reasons for hunger lie in social and political problems. Pure technological fixes offer no solution to these problems. To the contrary: GMOs are part of the hunger problem. As products of industrialized agriculture they are too expensive for small farmers². The GMO harvest is exported and mostly used as feed for animals. GE and industrialized agriculture is forcing many small farmers out of business. This puts local and national food security at risk, because it is still the small farmers who produce most of the food that is consumed locally and nationally in developing countries.

Most of the seed and pesticide market is already controlled by just three giants: Monsanto (Pharmacia group), Syngenta (the merger of the agro-chemical business of Novartis and Astra Zeneca) and Aventis Crop Science (created by Hoechst and Rhône-Poulenc, and taken over by Bayer in October 2001³). As a proprietary technology, GE is monopolised in the hands of a very small number of TNCs. Monsanto is the most important biotech patent holder in agriculture. Its products are responsible for genetic contamination and, as it is the case with Roundup Ready Soya, they need more herbicides.

‘Genetic Use Restriction Technologies’ (GURTs) are developed to control the traits of GE crops with the external application of special chemicals. These technologies threaten global food security, especially for the 1.4 billion people who depend on farm-saved seed and who produce most of the food that is consumed locally by the poor.

The agro-chemical companies behave like *food dictators*. They press farmers and consumers into GMOs and dictate the future of food and agriculture. Dale Adolph, formerly head of the Canola Council of Canada and as such a major promoter of GE crops and now head of the Canadian Seed Growers Association, recently told the Canola Council, “The total acreage devoted to GM crops around the world is expanding. That may be what eventually brings the debate to an end. It’s a hell of a thing to say that the way we win is don’t give the consumer a choice, but that might be it.”⁴

Food Dictators also threaten biodiversity, including centres of diversity and origin such as Mexico on which the future of food production and agriculture depends.

Solutions for agriculture and food security are already available. New reports and case studies as well as the new web site www.farmingsolutions.org show that food security and sustainable livelihoods can be achieved by innovative, environmentally responsible agriculture systems without threatening biodiversity, eroding the soil, polluting water or endangering human health.

¹ Greenpeace, „Record Harvest – Record Hunger“. Briefing, June 2002.

² Herren H. R., Potentials and threats of the Genetic Engineering Technology: Quest for an African Strategy at the Dawn of a New Millennium, The International Centre of Insect Physiology and Ecology(ICIPE), Nairobi, 1999

³ Bayer AG, Bayer acquires Aventis CropScience, Press Release, Leverkusen, October 10, 2001.. Jennen B., Smolka K. M., EU billigt Kauf von CropScience durch Bayer, Finacial Times Deutschland, Frankfurt, April 18, 2002, <http://www.ftd.de/ub/in/1014399015442.html?nv=rs>

⁴ Quoted in: Ewins A., Biotech must cater to consumers, says expert, The Western Producer, April 4, 2002.

The real causes of Hunger

The main reasons for hunger lie in social and political problems. Technical fixes, such as genetic engineering, won't address them, because hunger has nothing to do with absolute production of food. Enough food is produced to provide every human being with at least 2780 calories a day.⁵ Many commonly eaten vegetables, beans, nuts, root crops, fruits, grass-fed meats, and fish are not even counted in the statistics. Enough food is available to provide at least 4.3 pounds of food per person a day worldwide: grains, beans and nuts, fruits and vegetables, and nearly a pound of meat, milk and eggs - enough to make most people fat! But many people are too poor to buy the available food. Focusing on increasing production cannot alleviate hunger because it fails to alter the tightly concentrated distribution of economic power that determines who can buy the additional food.⁶

Poverty and lack of access to resources

Hunger and malnutrition are often created by a lack of access to or by exclusion of people from productive resources, such as land, the forests, the seas, water, seeds, technology, credits etc. 75% of the world's hungry are politically marginalised people who live in rural areas. Social exclusion, especially in rural areas is the main cause of the persistence of hunger and malnutrition.

Unfair trade regimes

The current agricultural trade system puts the South into an impossible situation: OECD annual state payments to their national agricultural sectors exceed Sub-Saharan Africa's entire Gross Domestic Product. Subsidized exports, artificially low prices and WTO legalized dumping are elements characterising the current model of agricultural trade in poor countries in the developing world. This trade has a tremendous negative impact on the majority of people living in rural areas: traditional family farms or indigenous communities. In the South, where agriculture is frequently the most important sector, agriculture is often discriminated against through taxation, liberalised cheap imports and/or marketing orders, favouring urban interests over rural ones. Both international and national trade policies often go against the rural poor

Privatisation of research and corporate control

It is a disturbing reality today that governments and international organisations are withdrawing from a public role in agricultural research and the promotion of sustainable agriculture, pretending that this role could be taken on by the private sector. To the contrary, agricultural research should be foremost based in the public domain and must recognize the rights of farmers in developing the existing variety of crops and livestock. Research often neglects the development of agricultural techniques that reduce the inputs needed and that are easy to control. Agricultural research at international and national levels is highly orientated towards industrial agriculture.

Land distribution and quality

Unequal distribution and property of land, as well as land conflicts and legal insecurities over land ownerships make all measures to improve soil quality inefficient. Activities to improve soil quality and fertility need a secure legal environment since they are long-term investments. About 85 percent of the world's agricultural land contains areas degraded by erosion, salinization, compaction, nutrient depletion, biological degradation, or pollution over the last 50

⁵ FAO, Committee on World Food Security, Mobilising Resources to Fight Hunger, CFS:2001/Inf.7, Rome, April 2001, p.6. The Food First Institute calculated that 3500 calories a day are available per caput by cereals production only. Food First, Institute for Food and Development Studies, Twelve Myths about hunger, San Francisco 1998, <http://www.foodfirst.org/pubs/backgrdrs/1998/s98v5n3.html>

⁶ Moore Lappé F., Collins J., Rosset P.: World Hunger: 12 Myths, Grove Press, New York, October 1998. ISBN: 0802135919

years. About 34 percent of all agricultural land contains areas only lightly degraded; 43 percent contains moderately degraded areas; and 9 percent contains strongly or extremely degraded areas. The extent of agricultural soil degradation raises questions about the long-term capacity of agro-ecosystems to produce food.⁷

GMOs are part of the problem

GMO's are part of the hunger problem. Whilst the products of industrialised agriculture in the developing world are too expensive as well as inappropriate for local consumption, the harvest is exported. As was the case with the Green Revolution, GE and industrialised agriculture is too expensive for small farmers, and it will force many of them off the land. This process has severe implications for local and national food security, because it is still the small farmers who produce most of the food that is consumed locally and nationally in developing countries.

The agro-chemical companies will not feed the world because they are not interested in sustainable solutions that keep farmers independent. As the winner of the 1995 World Food Prize and Director General of the International Centre of Insect Physiology and Ecology (ICIPE), Hans R. Herren, puts it: "The agro-industry obviously has in mind its shareholders, who are more interested in the short-term profitability than in the long-term sustainability of any given production system, even for their own food. Thus, if industry can sell a package that has to be bought over and over again, perhaps at an increasing number and cost per application, the better." (...) "We have here a typical example of a technology (genetic engineering) that is 'looking for an application', in other words, a stockholder/technology-driven rather than a problem-driven approach. The fact that there are many more efficient and sustainable, yet under-exploited, approaches readily available or easily researchable seems not to amount to much in the eyes of policymakers and many donor agencies."⁸

Also UN bodies and their research entities are aware of this fact.⁹ Andrea Sonnino of FAO's Research and Development Service told e.g. the participants of the FAO-APAARI Consultation in March, 2002, that an FAO survey of agricultural biotechnology use in developing countries found that commercially released GM crops have so far made "little or no contribution to food security".¹⁰

⁷ Pilot Analysis of Global Ecosystems (PAGE) Agro-ecosystems WRI/IFPRI 2000/01

⁸ Herren, 1999, op.cit.

⁹ United Nations University, Institute for New technologies (UNU/INTECH), Agricultural Biotechnology, Technology Policy Briefs., Vol.1, Issue 2, 2002, http://www.intech.unu.edu/publications/technology-policy-briefs/tpb_v1_02_2002.pdf

UNU/INTECH, Agricultural biotechnology needs to emphasize yield to maximize benefits to developing world. "Despite promise of "feeding the world," relatively small numbers of GM plant tests relate to yield", News Release, Maastricht, April 16, 2002.

<http://www.intech.unu.edu/pressrelease/press-release-2002-1.pdf>. And:

Reuters on April 16, 2002. UNU/INTECH director Lynn Mytelka was quoted as telling journalists in Geneva that, "Much of the research on genetically modified organisms is not dealing with the right crops or the right problems within these crops to benefit developing countries."

¹⁰ FAO-APAARI CONSULTATION ON REGIONAL STATUS OF BIOTECHNOLOGY IN AGRICULTURE organised by the FAO and the Asia Pacific Association of Agricultural Research Institutions (APAARI) http://www.fao.or.th/APAARI_Biotech.htm

Monsanto - dictating the shape of agriculture

Within a few years the agro-chemical company Monsanto, number two in global sales of crop chemicals, has become the second biggest global seed company with sales in 2000 of \$1.6 billion.¹¹ A major reason Monsanto went into the seed business was the expiry of the patent protection for its top selling herbicide Roundup by the year 2000.¹² By developing genetically engineered seeds that tolerate its Roundup herbicide and by patenting these seeds, Monsanto was able to extend and boost sales of Roundup.

The strategy employed by Monsanto for corporate acquisition in the 1990s was revealing¹³: in January 1997, for example, Monsanto bought for \$1.02 billion Holden's Foundation Seeds Inc., which supplies the germplasm and parent seeds for more than 35% of the corn acres planted in the U.S. The high price had "very little to do with Holden as a seed company", said an advisory report of the investment banking firm Dain Bosworth, but has „a lot to do with the battle between the chemical giants for future sales of herbicides and insecticides. Tying up germplasm so that it works only with your chemical products."¹⁴

While Monsanto was aggressively buying up seed companies - about \$8 billion worth of transactions between 1996 and 1998 – the company overstretched its balance sheet and weakened its stock price, despite substantial revenue generated by sales of its herbicide Roundup.¹⁵ Monsanto had to find an ally to get its financial situation stabilised again. A first attempt to merge with American Home Products fell apart in October 1998. In 1999, finally, Monsanto and Pharmacia & Upjohn signed a merger agreement, creating by this the world's 11th largest drug company and a very strong financial base for the agro-chemical and seed business.¹⁶

But Monsanto's new crops could not have become commercially viable without major legislative change. As members of the trade lobby Europabio, Monsanto and the other big biotech companies have mastered the legal climate in which they operate. Despite significant public opposition,

¹¹ ETC Communique:, *Globalization, Inc.*, Concentration in Corporate Power: The Unmentioned Agenda, July/August, 2001 Issue # 71

The top 10 Agrochemical Companies:			The top 10 Seed companies	
Company	Agrochemical Sales in 2000 (US) Millions,	Share of World Market	Company	2000 Seed Sales (US) Millions
1. Syngenta (Novartis + AstraZeneca) <i>pro forma</i>	\$6,100	20%	1. DuPont (Pioneer) USA	\$1,938
2. Pharmacia (Monsanto)	\$4,100	14%	2. Pharmacia (Monsanto) USA	\$1,600
3. Aventis (AgrEvo +Rhône Poulenc)	\$3,400	11%	3. Syngenta (Switzerland) <i>pro forma</i>	\$958
4. BASF (+ Cyanamid) <i>pro forma</i>	\$3,400	11%	4. Groupe Limagrain (France)	\$622
5. DuPont	\$2,500	8%	5. Grupo Pulsar (Seminis) Mexico	\$474
6. Bayer	\$2,100	7%	6. Advanta (AstraZeneca and Cosun) UK and Netherlands	\$373
7. Dow AgroSciences	\$2,100	7%	7. Dow (+ Cargill North America) USA	\$350 (<i>estimate</i>)
8. Makhteshim-Agan	\$675	2%	8. KWS AG (Germany)	\$332
9. Sumitomo	\$625	2%	9. Delta & Pine Land (USA)	\$301
10. FMC	\$575	2%	10. Aventis (France)	\$267

Source: ETC Communique:, *Globalization, Inc.*, 2001, citing Allan Woodburn Associates / Agrow

¹² Genetic Resources Action International (GRAIN), RoundUp Ready or Not; Seedling, March 97, Vol. 14, No 1

¹³ Monsanto mergers or acquisitions in the seed business between 1996 and 1998: DeKalb (US, 1996), Agron (US, 1997), Holdens (US, 1997), Cargill International (US, 1998), Plant Breeding Institute (UK), Stoneville (US), Delta&Pine Land (US, 1998). Source: Monsanto news releases 1997 and 1998: <http://www.monsanto.com/monsanto/media/98/default.htm>

And: Rural Advancement Foundation (RAFI): The Seed Giants –Who Owns Whom?, December, 2000

¹⁴ Dain Bosworth Industry Report, "Seed Industry Overview," December 2, 1996.

Journal of Commerce, "Monsanto Will Buy Holden's, Seed Firms," January 7, 1997;

¹⁵ Steyer R., Monsanto faces its many options, St. Louis Post-Dispatch, USA, November 14, 1999

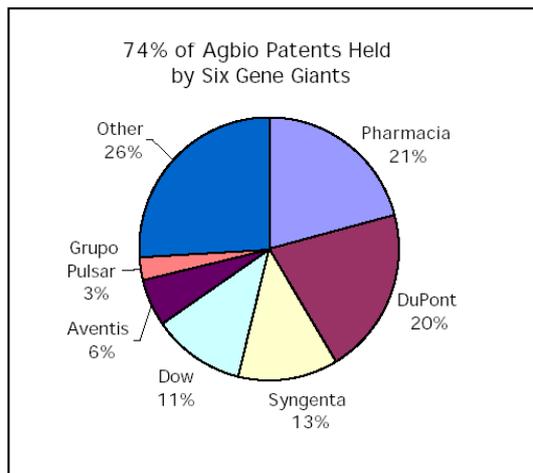
¹⁶ Associated Press, „Pharmacia & Upjohn, Monsanto intend to merge“, December 20, 1999. St. Louis Post-Dispatch, May 12, 2002

Europabio managed to persuade the European Parliament to adopt a directive, that allows companies to patent genetically engineered plants and animals.

Most important biotech patent holder in agriculture

In April, 2002, Monsanto announced a cross licensing agreement with Dupont, applying also for Roundup Ready soybeans and maize.¹⁷

Together, the two companies account for almost 15% of annual world commercial seed sales. In the lucrative U.S. seed corn market, the two companies control 73% of sales and share about 93% of the GE seed market worldwide. In agro-chemical sales Dupont ranks number five. In 2000, their combined sales amounted to \$6.6 billion or 22% of global agro-chemical sales.



In the USA and in Canada, special “Technology Use Agreement” oblige farmers who buy Monsanto’s patent protected seeds to follow strict rules, among others to apply only Roundup branded herbicides.¹⁸

Monsanto is vigorously pursuing growers who - intentionally or not - are growing patented seeds from Monsanto on their fields without a proper licence. The company has hired investigators from Pinkerton and other investigation firms to spy on farmers fields. According to Monsanto’s own press release, the company had in September 1998 more than 475 cases against farmers in the US alone and

Source: ETC Group¹⁹

alone and more than 250 of these cases were are under legal investigation in different US states.²⁰ The same is true for Canada where the well published case of Canadian farmer Percy Schmeiser is hanging in court.²¹ (See Box)

Having received hints or leads, Monsanto puts farmers under pressure and accuses them to eventually have used their seeds without licence. Monsanto “proposes” to the farmers in question that they could prevent a court case by just paying an amount of money to the company. A letter from Monsanto to a farmer in Danora (Saskatchewan, Canada) dated November 12, 1998²². The letter informs the farmer that Monsanto has “very good evidence to believe” that Roundup Ready Canola was planted without a license. Monsanto proposed to resolve the case out of court and wanted the farmer to pay Monsanto a fee of \$ 115 per acre, and to acknowledge that “Monsanto has the right to take samples from all your owned or leased land and storage bins for tree years”. Additionally, the farmer has to “agree not to disclose the specific terms and conditions of this Settlement Agreement to any third party”. According to Percy Schmeiser, farmers in Canada consider such methods as sending “extortion letters”.

¹⁷ Monsanto: DuPont and Monsanto reach agreement that brings new technologies to farmers worldwide. Press release: April, 2nd, 2002, http://www.monsanto.com/monsanto/media/02/02Apr2_Dupont.html

¹⁸ Greenpeace is in possession of such an agreement for Roundup Ready Canola from Monsanto Canada. Para 2 of the „Technology Use Agreement“ states: „The Grower shall purchase and use only Roundup® branded herbicide labelled for use on all Roundup Ready Canola seed purchased. (...)“ See annex I

¹⁹ Action Group on Erosion, Technology, and Concentration (formerly RAFI), Globalization, Inc. Concentration in Corporate Power: The Unmentioned Agenda, Communiqué, Issue # 71, July/August 2001

²⁰ Monsanto: MONSANTO RELEASES SEED PIRACY CASE SETTLEMENT DETAILS, Press release , ST. LOUIS, September 29, 1998.

²¹ For more details see: www.percyschmeiser.com.

²² See annex II

Percy Schmeiser - David versus Goliath

Percy and Luise Schmeiser had grown canola, wheat and legumes in Bruno (Saskatoon, Canada) on 1,400 acres of land for the last 47 years. In 1998, representatives of Monsanto arrived on the Schmeiser's farm and claimed that they were infringing on their patent for Roundup Ready canola. Monsanto claimed to have found it in their fields without them having paid the necessary fees to cultivate it. Percy Schmeiser argued that the seeds were blown into their field or were dumped there by accident. Monsanto wanted to settle this case out of court, but Mr. Schmeiser refused. A federal court judge ruled in March, 2000, that it was unlikely the patented canola ended up growing in Schmeiser's fields by accident. They were found guilty of patent infringement and ordered to pay a penalty, plus court costs for a total of almost \$400,000, including his own legal fees. To pay, they mortgaged their land and gutted their retirement savings. Percy Schmeiser: "What the judgment said was it doesn't matter how Monsanto seeds get into your fields; it's their property. All the farmers' rights go out the window." The farmer appealed against this judgement and registered himself a lawsuit against Monsanto for damages related to alleged contamination of his fields by Roundup Ready canola.

Source: www.percyschmeiser.com, *Toronto Star*, May 10, 2002, personal communication

Monsanto products are responsible for genetic contamination

Monsanto products have a record of contaminating seeds or foods with unapproved GE traits. Some of the recent cases include

Unapproved GT-200 Canola

In April, 2002, Monsanto admitted that unapproved GE canola seeds (GT200) may have found their way to farmers' fields. The Monsanto crop has not been approved for food use by the Food and Drug Administration (FDA)²³.

Quest canola in Canada

In Canada, Monsanto had to replace its canola variety 'Quest' in spring 2001. Quality tests had shown that the herbicide resistant variety Quest GT 73 was contaminated with the alternative genetic event GT 200 which is not approved in any of Canada's major export markets like the U.S. and Japan.²⁴ The Quest canola variety accounted for about 10 to 12 per cent of the canola growing area in Canada in 2000.²⁵

Illegal GE maize in Germany.

In April 2001, controls done by the Ministry of Environment of Schleswig-Holstein, Germany, found GE contamination in Monsanto's maize variety Arsenal, multiplied in Canada, and Pioneer's Janna maize, multiplied in Canada. Arsenal was contaminated with herbicide resistant GA21 maize, a GE maize that is illegal for any use in Europe.²⁶

Illegal GA21 maize in Switzerland

In April, 2002, Greenpeace tested maize semolina imported from Argentina to Switzerland, and detected contamination in three food products marketed by COOP Switzerland. The tests confirmed the presence of the Roundup Ready GA21 maize, which is produced by Monsanto. This variety has not been approved for human consumption in Europe nor for commercial growing in Argentina. Coop, the second biggest food retailer in Switzerland, had to withdraw the GA21-maize-products from the Swiss market.²⁷

Roundup Ready Soya – more herbicides

One of the fundamental claims of the Genetic Engineering (GE) industry that their soy crops need less herbicides than conventional varieties has been proven wrong.

²³ Pollak A., Unapproved Canola Seed May Be on Farms, Makers Say, The New York Times, Business/Financial Desk, April 16, 2002.

²⁴ Monsanto: Quest Canola Seed Replacement Offered, press release, April 25, 2001.

²⁵ Reuters: Monsanto replacing GMO canola seed in Canada, April 25, 2001.

²⁶ Rückrufaktion für gentechnisch verunreinigtes Maissaatgut in Schleswig-Holstein, @grar.de Aktuell - 27.04.2001,

<http://news.agrar.de/20010427-00003/>, See also: Greenpeace: No GMO releases through seed contamination, Background Paper, May 2001

²⁷ Greenpeace: Illegal Monsanto maize contaminates Swiss food, press release, 24 April, 2002

Data from the US Department of Agriculture (USDA) published in the National Agricultural Statistics Service, 1999, proved that in 1998 the so-called Roundup Ready (RR) soya, produced by Monsanto, needs 11.4% more herbicides on average than conventional soy, and in many cases up to 30% more than conventional varieties.²⁸

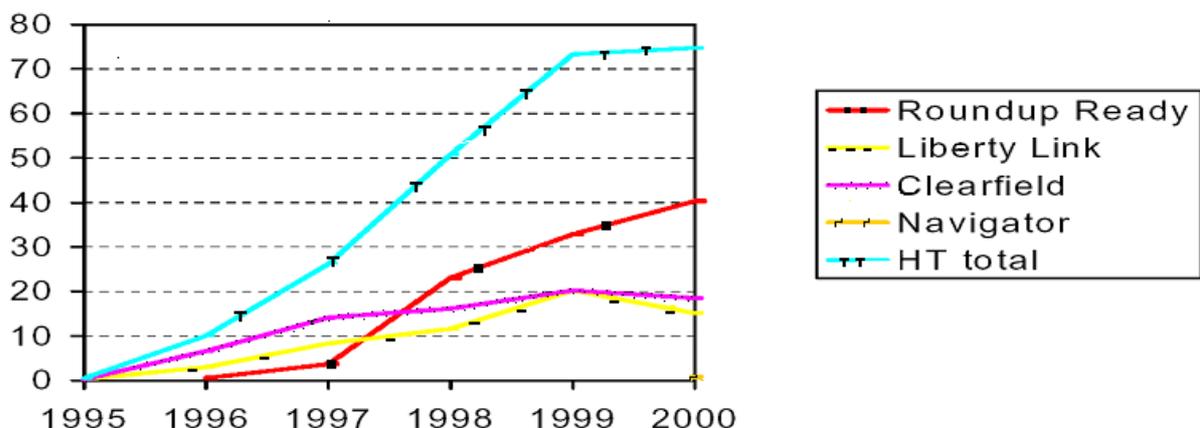
Dr Charles Benbrook, from the US Northwest Science and Environmental Policy Center, accused Monsanto of manipulating comparative data on herbicide use on its Roundup Ready soya and conventional soybeans "in ways that fall between misleading and dishonest". Monsanto has based its claims of herbicide-reduction on a comparison between 'traditional' soybean varieties" and RR crops without explaining that these traditional varieties were a selected number of "old generation" types, which require high-dose rate herbicides.

Recent scientific studies published in 2001 clearly show that yields of GE RoundupReady soya are suppressed. Another study shows that there was no effect of glyphosate on the RR cultivars. These scientific studies demonstrates that a 5% yield suppression was related to the gene or its insertion process.²⁹

Triple herbicide resistance

Canola cropping in Canada has shifted within five years from conventional to GE crops. Herbicide resistant canola covered about 75% percent of the total area of 4.8 million ha grown in Western Canada in 2000.³⁰ Roundup Ready Canola from Monsanto makes for about 40% of the total area.

Figure: Herbicide tolerant (HT) canola, as a percentage of the total area grown in Western Canada. 4.8 million ha grown in 2000, of which Roundup Ready and Liberty Link are genetically engineered³¹



Source: Orson Jim. Gene stacking in herbicide tolerant oilseed rape: lessons from the North American experience

After five years of large-scale growing of GE crops, environmental problems such as weeds developing resistance to Roundup in the US³² and triple herbicide resistant canola crops in Canada, are already a reality. To get rid of the superweeds farmers end up using a cocktail of herbicides.

²⁸ The USDA data for 1998 is published in the report by Dr Charles Benbrook, the Northwest Science and Environmental Policy Center: Benbrook Charles: 'Troubled Times Amid Commercial Success for Roundup Ready Soybeans', The Northwest Science and Environmental Policy Center, Sandpoint, Idaho, USA, 2001, <http://www.biotech-info.net/troubledtimes.html> (Benbrook, 2001)

²⁹ : Elmore R.W., Roeth F. W., Nelson L.A., Shapiro C.A., Klein R.N., Knezevic S.Z. and Martin A. (2001) Glyphosate-Resistant Soybean Cultivar Yields Compared with Sister Lines, *Agronomy Journal*, VOL. 93, MARCH-APRIL 2001, p 408-412

³⁰ Orson J. Gene stacking in herbicide tolerant oilseed rape: lessons from the North American experience *English Nature Research Reports No. 443*, Morley Research Centre, Morley, Wymondham, Norfolk, NR18 9DB, January 2002

³¹ Orson J., 2002

³² Ag BioTech InfoNet, Herbicide Resistant Weeds Spring Up in Bioengineered Soy Fields, ST. LOUIS, Missouri, May 4, 2001. and : Benbrook, 2001, op. cit.

Syngenta to control future crop traits

Syngenta (the merger of the agribusiness part of AstraZeneca and Novartis) is the world's largest agribusiness firm. It is number 3 in seeds and number 1 in agro-chemicals sales worldwide. The company is leading in a technology known as 'Genetic Use Restriction Technologies' (GURTs). GURTs work by controlling the traits of GE crops with the external application of special chemicals.

The patents of Syngenta claim ownership over a wide range of genetic modification techniques of staple crops. The techniques include control over the fertility of crops, over the ability and timing of flowering and sprouting, the control over how crops age and produce disease prone plants if they are not treated with chemicals. The plants' natural functions – or traits – are thus being betrayed. That's why they have been dubbed 'Traitor Technology'. It was the Canadian-based Rural Advancement Foundation International (RAFI) who first exposed the technology and coined the terms 'Terminator' and 'Traitor'.

Terminator technologies produce sterile seeds. This means farmers would have to buy new (patented) seed or chemicals that will switch off the sterility each year – at an increased and annual cost. If commercialised, the technology will prevent farmers from saving seed from their harvest for planting the following season.

The technology threatens global food security, especially for the 1.4 billion people who depend on farm-saved seed and who produce most of the food that is consumed locally by the poor. Terminator has been condemned by civil society groups and farmers' movements that consider it an assault on farmers and the well being of all rural people. It has been banned by agricultural research institutes and censured by UN bodies - including Dr Jacques Diouf, director general of the FAO.

After public protests against Terminator seeds, Monsanto as well as AstraZeneca and Novartis (now Syngenta) made public promises that they would not commercialise the genetic seed sterilization technology. In 1999, Zeneca's R&D director wrote that Terminator was "one piece of technology we did not want to take forward, and the project was stopped in 1992." But Syngenta continued to file for and win Terminator patents since 1992.

Syngenta, holds about 40% of the more than 60 existing Terminator patents. The newest Syngenta patent was issued on May 8, 2001. Syngenta filed its latest publicly known terminator patent application (US Patent Application 20010022004) on 13 September 2001. The patent application claims the control of plant fertility by controlling male and/or female sterility: „Therefore, the present invention can be used in any plant which can be transformed and regenerated to obtain transgenic plants in which male and/or female sterility can be controlled by the application of the appropriate chemical ligand.“ The application mentions also „The control of plant fertility is particularly useful for the production of hybrid seed.“³³

³³ Warwick H: Syngenta - Switching off farmers' rights?, London/Zürich, October 2000, published by www.actionaid.org
Küng V., US Patents and Patent Applications by Zeneca and Syngenta concerning Seed Production, Zürich, February 12, 2002, published by The Berne Declaration, www.evb.ch

Food Dictators contaminating centres of crop diversity

Maize was first domesticated ten thousand years ago in Mexico. Mexico is a repository of traditional varieties and genetic diversity for this vital crop. Farmers and breeders around the world rely on indigenous Mexican maize to create new varieties that can adapt to diverse and changing environments around the world.

Genetic diversity is critical to the continuing development of varieties resistant to new pests, diseases, and changing climatic and environmental conditions. Diversity is important for global food supply and food security. The lack of genetic diversity, conversely, can be linked to many of the major crop epidemics in human history. For example, lack of resistance, due to lack of genetic diversity, was the cause for the outbreak of the famous potato blight in Ireland in the 1840s. Since the poor were excluded from other available food sources, hundreds of thousands of poor people were starving.³⁴

A second example: in 1970, the maize crop in the southern United States was attacked by a disease called Southern maize leaf blight. Because of genetic uniformity among the maize varieties grown across the US, the loss to this disease was great – in total the US lost 15% of its harvest – at the time worth around \$1 billion.

According to botanists Jack Harlan, genetic diversity is all that “stands between us and catastrophic starvation on a scale we can not imagine.”³⁵

In September 2001 the Mexican government announced that scientists discovered contamination of indigenous varieties of maize with genetically engineered (GE) varieties. The likely source of the contamination is imported maize from the USA. The contamination was found in the state of Oaxaca in Mexico – one of the world’s centres of origin and diversity of maize - in 15 out of 22 communities.³⁶

There are over 300 local and wild varieties of Mexican maize, which stand to be lost in the face of contamination with GE crops. This not only affects Mexico but puts the world’s food security at risk since farmers around the world rely on these genetic resources to create new varieties adapted to changing environmental conditions.

When the contamination was discovered the U.S. Grain Council representative in Mexico was reported by AP to have said: "If a locally occurring variety receives some *improvement* from genetically engineered crops, it's up to the courts to decide whether farmers should be made to pay for that. But we want the patent rights of the owners of that genetic modification to be honoured."³⁷

³⁴ Fowler C., Mooney P.: Shattering – Food, politics and the loss of genetic diversity. University of Arizona Press, 1996, Tuscon/USA. p. 45

³⁵ Harlan, J.R.: Genetic Resources in Wild Relatives of Crops, Crop science, May-June 1976, p.330

³⁶ Instituto Nacional de Ecología (INE), CONFIRMA SEMARNAT PRESENCIA DE ELEMENTOS TRANSGÉNICOS, news release, Mexico September 18, 2002, <http://www.ine.gob.mx/transgenicos.html>.

³⁷ Ricardo Celma, head of the U.S. Grain Council's Mexico office quoted by AP, December 4 2002

Solutions for agriculture and food security are already available

Today's agriculture industry contributes significantly to environmental and natural resource degradation, undermining the underlying basis of people's food security. A different approach is fundamentally necessary.

A widening circle of individuals and organisations around the world believe that governments, agribusiness, farmers and consumers should reverse the current trend of chemical dependant, industrial agriculture, and support independent public research and promotion of sustainable agricultural models - especially those that meet the needs of small-scale farmers in the South.

Solutions lie not in feeding the world but in enabling the world to feed itself. Environmentally friendly practices are literally already in the ground but desperately lacking funding and policy support. www.farmingsolutions.org - a website jointly created by Greenpeace, Oxfam, and the Centre for Information on Low External Input and Sustainable Agriculture (ILEIA) - shows how food security and sustainable livelihoods can be achieved by innovative, environmentally responsible agriculture systems without threatening biodiversity, eroding the soil base, polluting water or endangering human health.

It addresses the role agriculture can play in successfully fighting hunger and malnutrition. Only if change happens now will future generations have a chance to exercise their right to food security in a safe and healthy natural environment.

Another recent report, called "*The Real Green Revolution*", provides an overview of the 'state of the art' of organic and agroecological farming systems in the 'South' and shows that in the South organic farming can increase food security, reduce poverty and protect environmental resources for the future – unlike its conventional alternative. The 150 page scientific report, written by Nicholas Parrott & Terry Marsden from the Department of City and Regional Planning at Cardiff University, identifies systems, technologies and methods which are proving effective in increasing yields, eliminating (or significantly reducing) the need for chemical inputs and in increasing farmers' incomes. Ten case studies from the South and a lot of other data support these arguments.³⁸

³⁸ Parrott N.; Marsden T.: *The Real Green Revolution, Organic and agroecological farming in the South*, London, February 2002. ISBN 1 903907 02 0. The report was published by Greenpeace Environmental Trust, Canonbury Villas, London N1 2PN, United Kingdom.

Greenpeace demands

Food is more than a commodity - it is a basic human right. This must be reflected in the policies of governments (North and South), international organisations and the private sector. Real progress will only be achieved, if the poor are enabled to feed themselves.

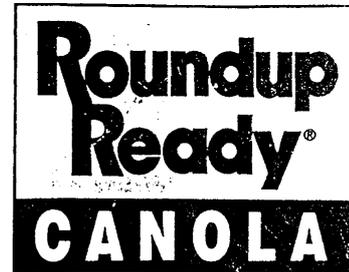
The large number of successful models for sustainable agriculture must be applied globally. Rather than pushing the agenda of a handful of agribusiness giants Greenpeace calls upon governments to engage for food sovereignty and to commit themselves to concrete actions. We urge governments to have open consultations with civil society organizations and to integrate their visions and demands in the formulation of food security plans.

There is an urgent need to implement the following steps and to spell them out in the Final Declaration of the Food Summit:

- To give priority to sustainable agricultural practices that respect traditional knowledge and the environment
- To immediately ratify both the International Treaty on Plant Genetic Resources for Food and Agriculture and Cartagena Protocol on Biosafety
- To recognise and implement the sovereign right of countries to prohibit any imports of GMOs and to protect national genetic resources from genetic contamination, specially in centres of diversity
- To stop patenting of life forms and to ban any 'genetic use restriction technologies', in particular Terminator technologies, as well as to maintain and increase public control of agricultural biodiversity
- To eliminate environmentally destructive government subsidies in the agriculture sector.

Annex I

Seed the Technology,
Harvest the Rewards.



TECHNOLOGY USE AGREEMENT TERMS AND CONDITIONS

1. The Grower shall use any purchased Roundup Ready® canola seed for planting one and only one crop for resale for consumption. The Grower agrees not to save seed produced from Roundup Ready canola seed for the purpose of replanting nor to sell, give, transfer or otherwise convey any such seed for the purpose of replanting. The Grower also agrees not to harvest any volunteer Roundup Ready canola seed crops.
2. The Grower shall purchase and use only Roundup® branded herbicide labelled for use on all Roundup Ready canola seed purchased. The Grower shall purchase both the Roundup branded herbicide and the Technology Use Agreement as a package from his retailer of choice. The Seed Purchase Fee shall be non refundable after the date of reconciliation of actual acres planted as set forth in the Monsanto Roundup Ready canola service policy.
3. Monsanto warrants the tolerance of plants from Roundup Ready canola seed to Roundup herbicide when used at specified label rates and as per label instruction.
4. The Grower grants Monsanto the right to inspect, take samples and test all of the Grower's owned and/or leased fields planted with canola, or any other land farmed by the Grower, and to monitor the Grower's canola fields and storage bins for the following three years for compliance with the terms of this Agreement. All such inspections shall be performed at a reasonable time, and if possible, in the presence of the Grower. The Grower also agrees to supply upon request the locations of all fields planted with canola in the following three years. Grower has or shall obtain all permissions required for Monsanto to exercise this right to inspect, take samples and test.
5. If the Grower violates any of the Terms and Conditions of this Agreement, the Grower shall forfeit any right to obtain any Agreement in the future and this Agreement may, at Monsanto's option, be terminated immediately. In the event of any use of Roundup Ready canola seed which is not specifically authorized in this Agreement, the Grower agrees that Monsanto will incur a substantial risk of losing control of Roundup Ready canola seed and that it may not be possible to accurately determine the amount of Monsanto's damages. The Grower therefore agrees:
 - a) to pay Monsanto \$15.00 per acre for every acre planted with Roundup Ready canola seed not covered by this Agreement; and
 - b) to deliver to Monsanto or its designated agent, at the Grower's expense, all seed containing the Roundup Ready gene that results from the unauthorized use of Roundup Ready canola; or at Monsanto's option, the Grower shall destroy all crop containing the Roundup Ready gene resulting from the unauthorized use of Roundup Ready canola; and
 - c) if the Grower sells, gives, transfers or otherwise conveys any seed containing the Roundup Ready gene contrary to the Terms and Conditions of this Agreement, the Grower shall pay to Monsanto a sum equal to \$15.00 for each acre capable of being planted using the seed that was sold, given, transferred or otherwise conveyed, or a sum equal to the amount received by the Grower for the seed that was sold, given, transferred or otherwise conveyed, whichever is greater; and
 - d) to pay Monsanto all costs incurred by it as a result of the Grower breaking any of the terms and conditions of this Agreement, including all legal fees and disbursements incurred by Monsanto on a solicitor and client basis.
6. The Terms and Conditions of this Agreement are personal to the Grower and shall be binding and have full force and effect on the heirs, personal representatives, successors and permitted assigns of the Grower, but the Grower's rights hereunder shall not otherwise be transferable or assignable without the express written consent of Monsanto.
7. All Terms, Conditions and provisions of this Agreement are severable, and any Term, Condition or provision or application thereof which may be prohibited or unenforceable by law shall be ineffective to the extent of such prohibition or unenforceability without affecting the remainder of this Agreement or any other application of such Term, Condition or provision. The use of the title "Technology Use Agreement" is for convenience of reference only and shall not affect or be utilized in the construction or interpretation of this Agreement.

Only Roundup Transorb and Roundup Original herbicides are registered for use on Roundup Ready canola.
Please read and follow label directions for all Roundup branded herbicides prior to use Roundup, Roundup Ready, Roundup Original and Roundup Transorb are trademarks of Monsanto Company. Monsanto Canada Inc., licensee © Monsanto Canada, Inc.

Annex II

 <p>MONSANTO Food · Health · Hope™</p>	<p>MONSANTO CANADA INC. 2233 ARGENTIA ROAD 4TH FLOOR MISSISSAUGA, ONTARIO L5N 2K7 PHONE (905) 819-9600 FAX (905) 819-9994</p>
<p><i>By Registered Mail</i></p>	
<p>November 12, 1998</p>	
<p>Mr. Edward Zielinski P.O. Box 1226 Danora (Makado), Saskatchewan</p>	
<p>Dear Mr. Zielinski:</p>	
<p>As you know on July 22, 1998, Monsanto with the assistance of Robinson Investigation Ltd. conducted an investigation (Investigation) to determine whether you had improperly planted Roundup Ready® Canola in 1998 without being licensed from Monsanto Canada Inc. A copy of our standard 1998 License Agreement (TUA) is attached for your review.</p>	
<p>We have completed our Investigation and have very good evidence to believe that Roundup Ready canola was planted on approximately 250 acres of land identified as SE 28-30-2, NE 28-30-2 and SE 19-30-2 in violation of Monsanto's proprietary rights.</p>	
<p>The planting of Roundup Ready Canola without a license is a serious violation of Monsanto's proprietary rights.</p>	
<p>Prior to making any final decision as to what steps we will be taking, and in an attempt to resolve this issue in a timely and economical manner, we are prepared to refrain from commencing any legal proceedings against you subject to the following:</p>	
<ol style="list-style-type: none">1. You forthwith pay to Monsanto the following sum: 250A x \$115/A = \$28,750.002. You acknowledge Monsanto has the right to take samples from all of your owned or leased land and storage bins for three years from the date of this letter.3. You agree not to disclose the specific terms and conditions of this Settlement Agreement to any third party.	
<p>..... 2</p>	
<p>Zielinski</p>	
<p>4 You agree that Monsanto shall at its sole discretion have the right to disclose the facts and settlement terms associated with the Investigation and this Settlement Agreement.</p>	
<p>Acceptance of this offer will be acknowledged by forwarding to Monsanto a certified cheque for \$28,750.00 and a duplicate signed copy of this letter by December 14, 1998.</p>	
<p>Yours truly,</p>	
<p>MONSANTO CANADA INC.</p>	
	
<p>Keith A. MacMillan Director, Legal Affairs</p>	
<p>READ AND AGREED TO THIS _____ DAY OF _____, 1998.</p>	
<p>SIGNED: _____</p>	
<p>NAME: _____</p>	