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**International Genetic Engineering Campaign**

**Background Information** **03/02**

# GE crops – increasingly isolated as awareness and rejection grow

With the new planting season starting in North America, this briefing examines current trends and future prospects for genetically engineered (GE) crops[1].

- Two countries (the United States and Argentina) account for 90% of genetically modified organisms (GMOs) in the world. Together with Canada and China, they account for 99% of GMO acreage.
- Two countries account for most of the remaining 1% of GMO acreage, South Africa (0.2m ha combined GE corn, soya and cotton) and Australia (0.2m ha cotton).
- Two crops (soya and maize/corn) account for 82% of the GMO acreage. Together with cotton and rapeseed/canola, they account for over 99% of the GMO acreage.
- One trait, herbicide tolerance, has consistently been the dominant trait during the six-year period 1996-2001, and accounts for 77% of the GMO acreage. Other traits are insect resistance (15%) and stacked genes for both herbicide tolerance and insect resistance (8%). These three traits amount for virtually 100% of commercially grown GMOs.
- One company (Monsanto) almost exclusively dominates the commercial GMO market. In 2000, Monsanto products alone accounted for 91% of the total area sown to GMOs[2]. Only three companies account for virtually all the GMOs currently commercially grown: Monsanto (now Pharmacia), Syngenta (formerly Novartis/AstraZeneca) and Aventis CropScience (formerly AgrEvo, recently acquired by Bayer).

## 1) Four countries account for 99% of GMO crop acreage. What about the rest of the world?

Annual figures produced by the International Service for the Acquisition of Agri-biotech Applications (ISAAA) are often quoted to support the claim that GMOs are gaining worldwide acceptance. However ISAAA is an industry-funded body sponsored by Monsanto, Syngenta and Aventis. While it is often cited as if it were an independent body, as an industry mouthpiece, ISAAA routinely renders its data to show worldwide support for GE crops regardless of any more reasoned interpretations.

Even according to ISAAA figures, which are themselves difficult to verify, only 7 other countries commercially grew any GE crops at all in 2001. Spain grew less than 12,000 hectares (ha) and Germany less than 100 ha of GE corn. Mexico grew "…a modest area of transgenic cotton and soybean." Indonesia grew 4,000 ha of GE cotton. Romania grew a small volume of GE soya and Bulgaria a small volume of GE corn however no actual figures for these are given. Uruguay grew 3,000 ha of GE soya in 2000, but no specific mention of any GE growing in Uruguay is made in ISAAA's 2001 report let alone any figures. However, the name stayed on the list as a country growing GE crops. Clearly it strains credibility to include any of these countries in a list that claims to show worldwide acceptance of GE crops.

[1] Statistics in this section are from ISAAA, Global Review of Commercialized Transgenic Crops 2001.
[2] Monsanto claims that the number of acres planted with its biotechnology traits amounted to 118 million acres in 2001 (Monsanto's Fourth-Quarter 2001 Earnings Per Share, 5 February 2002, www.monsanto.com), which makes 91% of the 130 million acres planted with GMOs according to ISAAA (ISAAA, Global Review of Commercialized Transgenic Crops 2001).

In an effort to claim that GE crops are being widely adopted by and providing benefit to developing countries, the latest ISAAA report claims that, "…the percentage growth [of GE crops] was higher in the developing countries of the South….". What they failed to stress was that over 98% of GMOs grown in 'developing' countries are actually cultivated in just two countries : Argentina (87%) and China (11%). Soya represents 95% of GMOs grown in Argentina and is primarily exported to be used as animal feed in developed countries, while virtually all the commercial GMO acreage in China is of cotton.

## 2) There is no market for `new` GE crops and the market for the existing GE crops is rapidly diminishing

GE tomatoes and GE tobacco, the first two GE crops to be commercialised, have failed to win market acceptance, and have been effectively abandoned, as neither are currently grown in commercial quantities.

GE potatoes were withdrawn from the US market in 2001 by Monsanto after a series of major market rejections, including by McDonald's, Burger King, McCain's and Pringles.

GE flax seed was taken off the market in 2001 under pressure from the Flax Council of Canada and the Saskatchewan Flax Development Commission because European customers, who buy 60 percent of Canada's flax, said they did not want GE.

GE rice has also faltered with Aventis backing off from commercialising its herbicide resistant GE rice, largely because of warnings from millers and large value-added domestic and foreign producers that they will reject it.

GE sugar beet has been rejected by US sugar refiners who told farmers to avoid GE sugar beet because Japan, which accounts for 80% of the sugar beet pulp market from the US, will not buy GE.

The `StarLink` fiasco: in the US last year, an unapproved GE corn which was a potential allergen was detected in taco shells and a range of other food products. This triggered a huge product recall, with related costs estimated at up to $1 billion. Aventis subsequently decided to abandon US production of GE `StarLink` corn and withdrew it from the market. Aventis is currently selling its CropScience division to Bayer.

### GE wheat:

GE wheat is already very controversial amongst US & Canadian farmers who are sceptical of the promised agronomic benefits and very concerned about the inevitable loss of their multibillion dollar export market.

In February 2001, farm representatives in North Dakota and Montana sought legislation restricting genetically modified wheat production. Terry Wanzek, chairman of North Dakota's Senate Agriculture Committee, was quoted as saying, "These bills are surfacing in North Dakota because of a genuine, sincere concern for the market. Our major wheat customers say they won't accept any wheat that has genetically enhanced characteristics, and we're listening to our customers."

More than 200 Canadian groups, including the National Farmers' Union and the Canadian Wheat Board, have expressed in the strongest terms their concerns that GE wheat will damage exports. Growers in Colorado and Oklahoma are telling farmers to "stay away from it". David Payne, director of Louis Dreyfus Negoce, was recently reported saying "[GE wheat has] definitely become an issue in the Middle East. People just don't want it". He said US wheat officials had heard similar fears from end-users during recent promotion drives in the Far East.

Monsanto has now pushed back the proposed introduction of its GE wheat from 2003 until 2004-2005 and has publicly stated that it will only do so if it can first gain pre-acceptance from buyers as well as environmental and health clearance from regulatory authorities. Pharmacia, which bought Monsanto's Ag Biotech division, is now looking to sell it again before the end of this year.

**GE Fish:**

The US Food and Drug Administration (FDA) is currently considering the first application for commercial use of GE fish. GE salmon will grow faster than conventional salmon. But this GE fish has been widely condemned by the fish farming industry, the food industry, and the scientific community. The public rightly wants nothing to do with it and international political action is underway to prevent any release of GE aquatic species to the environment.

The seven member countries of NASCO (the North Atlantic Salmon Conservation Organisation) have agreed to, "take all possible actions to ensure that the use of transgenic salmon… is confined to secure, self-contained, land-based facilities". Member countries include the US & Canada, European Union, Russia and Norway. It will likely be impossible to raise commercial quantities of GE salmon in such land-based facilities.

At the North Sea Ministers Conference in Bergen, Norway earlier this month (21st March), European governments took the opportunity to reinforce their position, "… in order to prevent their release to the marine environment [of genetically modified marine organisms]." In the US, the state of Maryland introduced in April 2001 the first law prohibiting the raising of GE fish unless they are in ponds or lakes that do not connect to other state waterways. The California state legislature is currently reviewing a similar bill, as well as one that would require labeling of any GE fish sold to consumers.

The scientific consensus appears to be that GE fish will not pass an examination of the potential human health and environmental dangers. However, even if they did, there would still be no market for them, domestically or internationally.

**GE soya**:

Soya buyers in the European Union, Asia & Australasia are purchasing non-GE soya from Brazil, India and US & Argentinean exporters who have recently set-up segregation systems to meet that demand. China with its new GMO legislation, and its roughly 12% share of the world soya import market, has started this year to create pressure for soya exporters to supply non-GE soya.

Despite a massive political and financial battle by Monsanto, Brazil has until now maintained a ban both on the growing and import of GE crops. Even if Monsanto overcomes that legal ban they are expected to meet stiff resistance from Brazilian soya exporters who have made huge gains by exporting guaranteed non-GE soya. Brazilian consumers and food industry are also likely to reject any use of GE foods and if commercialisation does go ahead at the national level, growing may be banned or severely curtailed by several state governments.

The US Department of Agriculture in May 2001 stated that, "Over the last 12 months, demand for certified biotech-free soybean meal has grown from near zero to 20-25 percent of the EU market according to officials in the compound feed industry". Since then there have been a further series of commitments by major companies across Europe to use only non-GE feed.

Since the main market for GE soya is as animal feed, the volume of GE soya being grown in the US and Argentina would be expected to reduce significantly once demand for non-GE animal feed on international markets and within the US significantly increases. That process has started and is gaining pace, but Monsanto has worked over time with major grain buyers to maintain a continued market despite the increasingly hostile climate for its GE crop.

## 3) International law is catching up with GE crops and labelling of GE food is becoming standard practise throughout the world.

More than 35 countries have laws either in place or announced which require the labelling of food containing GE ingredients, or which restrict the import of some GMOs. These countries combined include more than half the world's population.

**Japan**, which takes 20% of all US food exports, worth $ 11bn a year, recently announced a revised biotechnology labelling regime that adds potato products to the labelling scheme which imposed tough rules on an initial list of 24 product categories. In **South Korea**, the government requires mandatory labelling of GE foods and a recent amendment now means that advertisements in newspapers, magazines and TV commercials also have to indicate the presence of GE ingredients in food products.

**China** abandoned commercial growing of GE tobacco in 1998 and has recently introduced GE labelling laws and requirements for safety certification for all GE foods. Since China is the world largest single importer of soyabeans, this is already causing serious disruption of US soya exports. China's Dalian Commodity Exchange recently introduced new contracts for non-transgenic soybeans to conform to the country's rules on GMOs. Trading of non-GE soya futures in Japan's Tokyo Grain Exchange started already in June 2000, and has exceeded trading in GE soya.

**The European Commission** proposed in July 2001 new regulations on traceability and labelling of GE food and animal feed. The tightened labelling regime would include products derived from GMOs such as oil and starch as well as animal feed. Traceability of GMOs is included in the proposed regulation for the first time. Although some GMOs such as Monsanto Roundup Ready Soya, Aventis rapeseed oil and Syngenta Bt maize have clearance for use in food products in the EU, a de-facto moratorium on any new GE product approvals has been in place since 1998. Luxembourg, Austria and Germany have further banned Syngenta Bt maize, while France and Greece have banned Aventis rapeseed.

**Thailand**, the world's largest rice exporter, is expected to introduce labelling legislation this year.

**Australia and New Zealand** have adopted a mandatory labelling regime for GE food, which came into force on December 7, 2001.

In **Bolivia** a Ministerial Resolution was passed in January 2001 prohibiting the import and use of any GMOs for a period of one year. In September 2001, **Croatia** drafted a law proposing to impose a ban on the import, placing on the market, use and production of GMOs and GE products. In the **Czech Republic**, since January 1, 2002 all GE food products have to be labelled. The 13 countries applying to join the EU will eventually be covered by EU legislation of GE crops including strict labelling and safety testing requirements.

In **Paraguay**, the use of GE soybeans in the agricultural sector was banned in 2000/2001. In the Philippines there are a number of bills before the Senate and Congress concerning the labelling of GE crops. Labelling legislation is also in preparation in **Hong-Kong**, Israel, Mexico and Brazil. GE food labelling is already mandatory in Indonesia, Latvia, **Saudi Arabia**, Switzerland and **Norway**. Bills to restrict GMO planting or for labelling of GMOs currently being discussed in many US states, the Canadian Parliament and in Mexico.

## 4) International markets are rejecting GE crops in food and in animal feed

Virtually the entire European food industry has already taken action to ensure that no GE ingredients are directly used in any of their food products. Such policies are being actively pursued by major retail groups and food manufacturers, including Carrefour, Tesco, ASDA (Wal Mart), Nestle, Unilever, Heinz and many many more. A significant number of these have already extended their policy to cover animal feed.

The first mainstream US retailer, Trader Joe's, recently followed the major healthfood retail chains Whole Foods and Wild Oats in rejecting GMOs saying that the policy is the result of "talking with our customers," and finding that "it is clear ... that if given the opportunity, the majority of our customers would prefer to have products made without genetically engineered ingredients".

In 2001, the value of US corn exports to the European Union was a mere 0.6% of what it was before the introduction of GE corn : $305 million in 1996 down to $1.8 million in 2001, according to USDA statistics.

97% of the world's GE canola is grown in Canada. It was introduced in 1996 and now accounts for about 66% of Canadian Canola. By 1998 Canada had entirely lost its $300-400 million annual sales of canola to Europe.

## 5) Public opinion continues to reject GE foods

Consumer rejection of GMOs in Europe is well known. These latest polls from Asia, Canada and the US show GE rejection growing internationally. Surveys in these regions appear to be following the same trend as in the EU, i.e. increasing knowledge equalling increasing rejection.

On November 16, 2001, the Rutgers University Food Policy Institute in the U.S. released a study confirming that the vast majority of Americans surveyed want GE foods labelled. This study is the second major poll recently conducted of U.S. attitudes toward GE foods to determine that upwards of 90 percent want labelling legislation. ABC News conducted the other poll in July of the same year. Furthermore, the study finds that Americans are highly sceptical of GE foods and the motivations of the producers of such foods, believing that most are in it for the money and not because consumers want it. 48 percent say that they would not buy fresh vegetables if they were labelled as produced through genetic engineering. The study also reveals that most Americans know little about genetic engineering or which of their foods are genetically engineered, yet 75 percent of those surveyed knew enough to agree that, "The potential danger from genetic modification [of foods] is so great that strict regulations are necessary." Nearly 60 percent also feel that, "The government does not have the tools to properly regulate [genetically modified] foods."

## 6) Farmers are also waking up to the problems and false promises of GMOs:

*"Farmers are really starting to question the profit-enhancing ability of products that seem to be shutting them out of markets world-wide"*

- Cory Ollikka, Canada's National Farmers Union president calling for a moratorium on GE crops, December 2000.

In the USA and Argentina, soya farmers have been won over by the industry's promises of better yields and lower costs. A number of studies in the last four years have found these promises to be false – some found that GE agriculture had no net effect on farmer profitability; some that it had a negative effect.

For example:

(1) Charles Benbrook, Northwest Science and Environmental Policy Center, Sandpoint Idaho, May 2001 report, 'Troubled Times Amid Commercial Success for Roundup Ready Soybean' – found that Roundup ready soyabeans require more herbicides than conventional soyabeans and yield up to 10% less;

(2) Institute of Agriculture and Natural Resources, University of Nebraska, study of 1998 and 1999 Nebraska soya crop – found lower yields for GE varieties;

(3) Leopold Centre for Sustainable Agriculture, Iowa State University, survey of Iowa soya and maize crops, 2000 – found that total extra costs (e.g. for seeds) were roughly equal to total savings plus yield gain – i.e. no net economic advantage to farmers;

(4) OECD annual report, 2000 – indicated confusion about whether there is benefit to farmers from GE crops; found that no conclusion on overall profitability can be drawn.

## 7) Future prospects for GE crops

After five years of commercial growing on GE crops in the Americas, predicted environmental problems such as triple herbicide resistant canola crops in Canada are already a reality which farmers end up using a cocktail of chemicals to get rid off. The false promises of increased yields from GE crops have also been exposed. For example, an average 5 percent yield loss has now been regularly recorded with GE soya.

With increasing worldwide legislation of GE crops, increasing international market rejection of GE crops, increasing demands for labelling and safety testing of GE crops on one hand and growing awareness and rejection of GE food by consumers, farmers and the food industry on the other, the increasing acreage of GE soya appears as an anachronism created more by political and monopoly influence than by market demand.