

Save Our Seeds!

Agriculture and environment threatened by GE seed contamination law

As the European Union prepares to implement regulations that will further close the market to genetically engineered (GE) food and crops, a new legislative threat to Europe's de facto non-GE status is emerging: the prospect of legally allowed GE contamination in conventional and organic seeds.

In the coming weeks the European Commission will seek regulatory committee approval for a directive that could see GE crops grown in Europe on a commercial scale by stealth. It would permit thousands of millions of GE seeds to be mixed with ordinary planting seeds and released into European soil.

This proposal is formally opposed by over 300 farmer, environmental and consumer groups representing over 25 million Europeans. Despite the potentially far-reaching and devastating consequences of this piece of legislation both the European Parliament and the Environment Ministers are so far being excluded from the decision making process.

Greenpeace is concerned that this seed contamination proposal could:

- **Result in unprecedented GE contamination on around 10% of EU arable land within a year.**
- **Allow release of about 7,000 million unmonitored and unregulated GE rape and maize plants per year rising to 11,000 million GE plants following European enlargement.**
- **Create agronomic problems for farmers and increase the use of outdated and dangerous pesticides.**
- **Add hundreds of millions of Euro to the cost of producing the non-GE crops required by European retailers and demanded by European consumers.**
- **Threaten the viability of European organic agriculture.**
- **Erode farmers' rights to choose, save and control their own seeds.**
- **Enact a controversial political decision without proper democratic procedure.**

Greenpeace support establishing a threshold for non-GE seed purity at the level of detection – currently agreed as 0.1%. Contrary to the claims of the genetic engineering industry this low level is not only practical and desirable but in fact over 95% of all seed lots tested in Europe, including imported seeds, already meet this standard. Austria and, beyond Europe, New Zealand have already enacted seed laws banning genetic contamination of seeds beyond this level of detection.

This background briefing examines these issues and the current attitude of different member states to the proposed GE contamination legislation, listing some of the 300 European agricultural, environmental, food industry and consumer groups who are opposing this threat to our seeds.

The EU Seed Directive on GE Contamination – a license to pollute?

Since 1999 there have been sporadic examples of genetically engineered seeds becoming mixed with stocks of conventional and organic seeds – often rendering seed lots illegal or unsaleable. As seed contamination revelations mounted in June 2000 the EU Commission adopted an interim "gentleman's agreement" which set zero tolerance for unapproved GE varieties and otherwise instructed member states to reject GE contamination in seeds above 0.5%.ⁱ

The European Commission Services for Health and Consumer Protection (DG SANCO) subsequently undertook to establish a regulation on GE seed contamination with the assistance of a regulatory committee: the Standing Committee on Seeds and Reproductive Materials for Agriculture, Horticulture and Forestry. Following successful lobbying by the European seed and genetic engineering industry the working draft of that proposed regulationⁱⁱ is now close to approval. The draft legislation establishes tolerance thresholds for GE seed contamination below which it is unnecessary to label the seed lot as containing GE seed. In other words these labelling thresholds grant a license for GE companies to contaminate seed up to these levels. According to the draft regulation:

- In a seed lot of **oilseed rape** up to 0.3% of the seeds can be from genetically engineered varieties and the bag remain unlabelled.
- In a seed lot of **maize, beet, potatoes, tomatoes or cotton** 0.5% of the seeds can be from genetically engineered varieties and the bag remain unlabelled.
- In a seed lot of **soy** 0.7% of the seeds can be from genetically engineered varieties and the bag remain unlabelled.

Above these thresholds seed lots must carry a label indicating the presence of genetically modified organisms (GMO's). These thresholds only allow the presence of GE varieties which already have an EU approval for growing. GE companies Monsanto, Aventis and Syngenta already have the necessary European growing approval which would allow them to contaminate conventional seeds of oilseed rape and maize should the Commission's proposal be passed.ⁱⁱⁱ The proposal was also intended to define the necessary farming measures to be taken by seed producers for maintaining the purity of conventional seeds but those measures have now been removed from the text. Such definitions are essential since tolerances are foreseen only for contamination considered 'adventitious' (accidental) and seed producers will need to prove they have taken all necessary measures to prevent contamination.

The basis on which DG SANCO chose these thresholds was not a question of how low the levels of contamination in seeds could be kept in the particular situation of EU agriculture. Instead DG SANCO calculated the maximum possible contamination level to remain within the labelling limit for food. Since there is currently a 1% threshold for GE contamination in food products beyond which the food must be labelled, computer modelling was used to estimate what levels of seed contamination could still deliver raw materials under that legal labelling threshold.^{iv} The resulting values of 0.3%, 0.5% and 0.7% are not a reflection of how low it is possible to keep GE contamination nor do they take into consideration the environmental and agronomic impact of such contamination. It was also acknowledged that, by choosing such high levels, the amount of contamination in the final product would creep up over the long term - especially in oilseed rape.^v

GE seed contamination – The need for control

Since 2000 a series of GE seed contamination scandals have exposed that genetically engineered seeds can become mixed with stocks of conventional and organic seeds – often rendering seed lots illegal or unsaleable:

- Throughout the spring and summer of 2000 it became apparent that between 2000 – 4000 hectares of Greek cotton fields had been contaminated by 847 tons of GE cottonseed. About a 1000 hectares of this was identified and half of the cotton was officially destroyed.^{vi}
- In May 2000 it was discovered that a large quantity of GE rape seed produced by seed company Advanta was contaminated with Monsanto's unauthorised transgenic GT-73 variety. It had been imported and supplied to farmers in France, Germany, Sweden and the UK. Farmers ploughed up the affected fields in order to receive government compensation.^{vii}
- March 2001, hundreds of tons of conventional maize and soy seed marketed by Syngenta and Monsanto were confiscated by the Italian authorities following discovery of GE seed contamination.^{viii}

Since the purity of seeds is essential to maintaining the integrity of the food chain, environmental, farmer and consumer groups responded to these discoveries by calling on lawmakers to implement tough regulations to protect seeds from unwanted GE contamination. They pointed to the fact that most seeds planted in Europe are still non-GE at this point and should be kept that way.^{ix}

Meanwhile, the seed and GE industry exploited these scandals to issue a tactical demand that governments instead de-regulate by permitting levels of GE contamination in seeds at agreed thresholds. Genetic engineering companies such as Aventis and Monsanto, who had previously claimed GE pollution was containable, now executed an astonishing 180 degree turn of rhetoric and began to plead that they could no longer control the spread of their own GE creations. They argued that the trespass of "adventitious" (unintended) GE contamination was now so unavoidable, even in seed production, that it should be legally 'tolerated'.^x As a result of their lobbying, this was the approach adopted by the Commission.

"The hope of the industry is that over time the market is so flooded (with GE) that there's nothing you can do about it, you just sort of surrender."

Don Westfall, vice- president Promar International, major US food industry consultancy
Starlink fall-out could cost billions, The Toronto Star. Jan 9th 2001

"The real strategy is to introduce so much genetic pollution that meeting the consumer demand for GM-free food is seen as not possible. The idea, quite simply, is to pollute faster than countries can legislate - then change the laws to fit the contamination".

When Choice Becomes Just A Memory, Naomi Klein. The Guardian, January 21, 2001

Small sounding numbers = floods of contamination

What may sound like small thresholds (0.3%, 0.5%, 0.7%) in fact creates wide open loopholes through which thousands of millions of GE seeds can be released into the environment unregulated, unmonitored and impossible to recall should something go wrong. Genetic engineering is an unpredictable technology with potentially devastating effects on soil fertility, insects, birds and the health of agricultural ecosystems.

- General contamination of seed stocks as permitted by the proposed directive amounts to the widespread growing of GE plants amongst conventional crops at a rate of 1 in every 200 plants for maize, beet and cotton, 1 in just over every 330 plants for oilseed rape and about 1 in every 150 soy bean plants.
- Calculations by the Greenpeace Science Unit^{xi} suggest that, under the proposed seed contamination Directive, it would be immediately legal to release up to 7,000 million GE plants

through 'adventitious' contamination across the almost 8 million hectares currently growing maize and rape. This constitutes an unprecedented environmental release of GE plants. If all planted in one place that number of plants would require over 32,000 hectares of land - an area twice as large as Brussels.^{xii} Worryingly, however, such contamination would in fact trespass on and could contaminate about ten percent of EU arable land.

- The potential release of GE plants through this legal seed contamination loophole would be further increased following EU enlargement, when it could extend to the 6.9 million hectares of agricultural land in the so called 'accession countries' (including Turkey) currently sown with maize and oilseed rape. By also permitting seed contamination in these 13 countries, Europe could be faced with over 11,000 million unregulated GE plants – enough to fill over 90,000 football pitches – spread over almost 15 million hectares of agricultural land.
- Calculations on a worst case scenario, (in which the pending approvals for growing of GE cotton, sugarbeet and soy are passed,) show almost 15,000 million unregulated GE plants could escape into the environment of an enlarged Europe through the provisions of the proposed seed Directive.

A regulatory nightmare for environmental monitoring agencies

Such widespread GE contamination through seed would raise significant problems for the environmental protection measures enshrined in the new European horizontal legislation on GE crops, Directive 2001/18, which comes into force on the 17th October 2002.^{xiii} This new Directive requires that EU member states put in place monitoring systems for all GE crops, that they maintain a register of where such crops are grown and that they establish measures to recall such crops if necessary. Seed contamination by contrast will be generalised, unidentified and therefore unmonitorable and impossible to recall. Furthermore, the legally sanctioned and varied presence of GE seed contamination could frustrate the ability of environment agencies to set a baseline for effective monitoring of genetically engineered organisms in the environment. Areas set aside for nature conservation would also be affected.

Wildlife watchdog warns of agronomic problems – superweeds and extra pesticides

In a recent submission, the UK government's statutory nature conservation agency, English Nature, strongly opposed the Commission's proposed thresholds.^{xiv} They warned:

- Herbicide resistant weeds could be produced from such a large release through contamination. This may force farmers to use older and more environmentally damaging pesticides such as Paraquat and 2,4 D.
- In the near future such weeds could establish resistance to multiple herbicides becoming 'superweeds' as has already occurred with canola (rapeseed) in Canada. This is proving extremely costly for farmers, can out compete wild plant populations and is also leading to increased use of outdated and dangerous pesticides.

Increased costs and risks to the entire food chain

While the seed and GE industry have successfully lobbied for a seed contamination proposal that suits their interests, the real costs and impacts to the rest of the food chain from farmer to consumer have been neither calculated nor considered by the regulatory committee responsible. What is clear is that such massive release would put into serious question the de facto non-GE status of European agriculture.

At present almost all food processors and retailers across Europe specifically request non-GE food ingredients and raw materials.^{xv} In order to maintain the ingredients in their final product well under the

current legal labelling threshold of one percent, non-GE processors will generally request that such raw materials are delivered without any detectable traces of genetically engineered organisms. Major European supermarkets such as Carrefour use sophisticated 'identity preservation' systems to keep GE contamination in raw materials under the agreed detection limit of 0.1%.^{xvi} Since GE seed contamination is currently an irregular occurrence, European farmers growing crops from clean seed in a GE-free environment can meet these non-GE requirements without problems.

The proposed directive however, saddling farmers with considerable GE contamination even before growing, could place farmers suddenly in the difficult position of delivering GE contaminated food to processors at contamination levels close to or exceeding 1%. Enquiries by Greenpeace to supermarkets across Europe have confirmed that they would not tolerate rising levels of GE contamination in food beyond the detection level of 0.1%. In effect this regulation could exclude EU farmers from their own market.

Among the signatories of the Save Our Seeds petition are natural food producers and EuroCoop, the European Community of Consumer Co-operatives, representing more than 3200 local or regional co-operatives membership of which amounts to over 19 million consumers in the European Union. Their members operate supermarkets across Europe and also favour the lowest possible seed contamination threshold.

Burden of non-GE proof transferred to farmers at their expense

In order to avoid contamination in their final product farmers may be expected to test their seeds before planting. This is already becoming a standard but costly practice for non-GE farmers in USA and Canada^{xvii}. The Joint Research Centre of the EU estimates that in the case of widespread GE growing putting in place such testing systems in Europe to deliver a rape seed crop at under 0.1% GE contamination will cost the farmer an extra 112 Euro per hectare.^{xviii} Since the EU annually grows 3 million hectares of conventional rape^{xix} this measure could end up costing many hundreds of millions of Euros to farmers, the food industry and potentially the consumer. COPA/COGECA, the largest European body representing farmers' organisations, has requested that the GE industry, rather than non-GE producers, should carry the burden of cost:

"COPA/COGECA notice that the responsibility and additional costs linked to respecting the obligations introduced for marketing conventional seed, i.e. non GMO seed, are shouldered uniquely by producers of conventional seed, and not by those who choose to produce genetically modified plants. Such an approach is obviously dubious and must be reviewed. It does not correspond to the expectations of European consumers, who, in the current context, are calling rather for the isolation of GMO crops, not the creation of GMO-free niches, and are refusing to pay for the additional cost of conventional products."^{xx}

A direct attack on organic agriculture

Specifically at risk from the GE seed contamination Directive are organic producers. They must exclude GE crops from their production in order to maintain their organic certification. Supply of non-GE seeds are essential to them. As consumer demand for organic food rockets and governments try to support this environmentally friendly method of growing, much of organic farming in Europe is being carried out under permissions that allows use of conventional seeds in order to help keep up growth in production .

Should the Commission's proposals be adopted, organic farmers who unknowingly buy GE contaminated seed could face a significant loss of earnings as well as burdensome testing costs. They may not be able to sell their crops at all. Once GE crops have contaminated their land cleaning up that genetic pollution will also prove difficult. For some emerging organic markets such as the EU market in organic rapeseed, most seeds are currently sourced conventionally^{xxi} and thus most of that organic crop is at risk. There is a precedent for this: In less than 5 years GE seed contamination has already

destroyed almost the entire production of organic rapeseed in Canada's main growing region of Saskatchewan^{xxii}. If the same happened in Europe organic farmers could lose their livelihoods and consumers would lose choice.

Organic farmers are further disadvantaged in the case of GE seed contamination because, without chemical weed control options, GE contamination is likely to spread faster once it has taken hold in their crops or else be much more expensive to remove - requiring extra manual labour.^{xxiii}

Farmers lose control and rights

Besides the extra costs of testing and maintaining a non-GE crop, farmers could find themselves losing yet more control over their most vital agricultural input: the seed. The rights of a farmer to choose, control and save their seeds are generally recognised as an important part of food security and essential to sustainable conservation of genetic resources.^{xxiv} These rights would be eroded by the introduction of this directive. By establishing thresholds below which unlabelled GE contamination is permissible by seed companies, farmers may have no choice but to unknowingly plant GE crops on their land. Just as consumers have a right to know if they are being sold GMOs so too should farmers have a right to know what they are planting.

The age-old practice of saving seeds could also be eroded. The recent EU Joint Research Centre report on Co-existence of GE, Conventional and Organic Crops in European Agriculture notes that, once established, levels of seed contamination would increase much faster year on year for farmers who save and re-grow their own seed.^{xxv} Therefore farmers intending to sell non-GE products will likely be forced to buy certified seeds every planting season, again increasing on farm costs significantly, decreasing the genetic diversity of available seed stocks and taking locally adapted varieties out of existence.

Wrong and unaccountable decision making procedure

It is of particular concern that such a far-reaching measure is being decided by an unelected technical committee behind the closed doors of the EU's so called 'comitology' procedure. Moreover, it seems inappropriate that the drafting of the regulation is being carried out only by DG SANCO and not also, as would be expected, DG Environmental and DG Agriculture. The Standing Committee on Seeds, which has been considering the text of the proposal, is composed of seed officials from each of the member states and is usually responsible only for setting uncontroversial technical standards with no political significance. In early November they will be asked by the Commission to give an 'indicative vote' of whether they support the proposed Directive. This will be followed by a final vote amongst themselves after which the directive will be brought into law.

Unfortunately the Standing Committee on Seeds does not have formal expertise in matters of GE contamination of the environment or non-GE marketing. Indeed they are not being asked to consider these aspects. Both the European Parliament and the Council, who have been extensively involved with previous GE legislation, have been excluded from the drafting and decision-making of this seed Directive. In July 2002 the Environment Committee of the European Parliament sent a specific request to the Commission for this matter to be brought under the co-decision procedure. The Commission has yet to respond.

There are even questions arising as to whether the Standing Committee on Seeds is in fact legally empowered to set such thresholds. The European Parliament's Green group^{xxvi} have pointed out that Article 21.2 of the new horizontal directive on GMOs, 2001/18, explicitly states that adventitious thresholds for labelling GE products (including seed) should be set by another committee established under that directive. Again there has been no response from the Commission on this legal question.

While neither ministers, the public or their elected representatives in the European Parliament have any say in the decision making on these controversial thresholds, the one body that will be offered sixty

days to comment and propose amendments is the even less transparent and less accountable World Trade Organisation.

Solution: Zero tolerance is practical, desirable and already standard

The biggest fallacy in the discussion on GE seed contamination is that it is unavoidable and that zero tolerance is impossible. This myth is often repeated by the GE companies and their seed industry allies. In fact the only limit on achieving zero GE contamination of seeds is the accuracy of methods of detection. At present it is agreed that the presence of GE seeds can be reliably detected at 1 seed in a batch of 1000 seeds (0.1%). This level therefore represents a 'technical zero'. As techniques improve and the level of detection drops this technical zero will get closer to actual zero.

Currently the overwhelming majority of seeds in the EU have less than 0.1% GE contamination. In the wake of seed contamination scandals, in 2000, all EU member states agreed to start testing seed lots of maize, oilseed rape, cotton and soy.

In over 3000 seed samples analysed so far by EU governments less than 5% show any detectable GE contamination. In other words over 95% of all seed lots tested in the EU, including imported seeds, are already produced under the zero tolerance threshold of 0.1% GE contamination:

Austria

July 2001 – The Austrian Agriculture Ministry analysed 11 rapeseed lots, 71 soya seed lots and 155 maize seed lots. GE contamination was found in only 18 maize seed lots and 1 soy seed lot.^{xxvii}

May 2002 – The Austrian Agriculture Ministry analysed 134 seed lots of rape, maize and soy seeds and found no contamination at all.^{xxviii}

France

March 2002 - 132 seed lots of maize, soy and corn from 31 companies were analysed by the French government. Only one lot of maize seeds from the US was contaminated (at 0.2%)^{xxix}

Aug 2002 – 447 Imported seed lots from USA, Chile, Hungary, South Africa and Turkey were analysed by the French Government. 109 samples were found contaminated of which 93 were below 0.5%.^{xxx}

Germany

2001 – The 12 German Federal Counties (Laender) analysed 266 samples of maize seeds and 215 samples of rape seed and found only 10 GE contaminated samples (9 maize and 1 oilseed rape)^{xxxi}

Greece

June 2002 - The Greek Ministry of Agriculture announced the test results on conventional seeds of maize, tomato, beets and cotton for autumn 2001-spring 2002. They tested 1249 samples and found 1246 not contaminated. Only 2 cotton samples and one maize sample tested positive for GE.^{xxxii}

Sweden

Spring 2002 - Several tests on rape, sugarbeet and potato have been conducted and the samples sent to a French lab called Agrogene. This includes both imported seeds and seeds produced in Sweden. No GE contamination above 0.1% has been detected.^{xxxiii}

UK

Oct 2002 – The Department for Environment, Food, Regions and Rural Affairs announced a comprehensive audit of all UK seed stocks of maize, soy, beet and oilseed rape since summer 2000. 75 beet seed lots, 113 rape seed lots, 12 soy seed lots and 238 maize and sweetcorn lots were audited and only 5 cases of maize contamination found, all below 0.5%^{xxxiv}

It is significant that many of the seeds tested by national governments and found to be uncontaminated have been sourced from the US, Canada or South America where there is already widespread growing of GE crops. In January 2002 the American farm website Cropchoice.com published a partial list of over 30 US seed companies who confirmed they could provide seed at under 0.1% contamination.^{xxxv} This included companies with strong genetic engineering interests such as Delta Pine and Land.

Globally Austria and New Zealand lead the way

The practicality of establishing zero tolerance regimes for GE contamination has already been recognised and proved by at least two nations in Europe and beyond:

Austria: Following the discovery in May 2001 of 180 tonnes of GE contaminated seed, the Austrian Regulation on GE Seed Contamination came into effect on 1 January, 2002. This law states that every batch of seeds sold in Austria must be tested by the producer to ensure that there is no contamination with GE seeds. Imported seeds are monitored, certificates are required and the government carries out random testing. The authorities take action if contamination exceeding 0.1% is detected in test samples. Sanctions include the seizure of seed and fines of up to 14,500 Euro rising to 21,800 Euro in case of recurrence.^{xxxvi} As a result of these measures the latest analysis of seeds sold in Austria showed no GE contamination at all. Pioneer, the worlds largest seed producer owned by GE company Du Pont, has explicitly confirmed that they now have no trouble supplying seeds to the Austrian Market at under 0.1% GE contamination.^{xxxvii} The Austrian case clearly shows that the regulatory measures can and should determine the level of seed contamination rather than merely conform to expected worst case levels.

New Zealand: New Zealand is an important seed producing country for US companies who use the difference in seasons to grow up seeds for export. During the recent 2002 elections it emerged that the government had previously agreed with GE company Novartis to cover up the accidental import and growing of 15,000 GE maize seeds in December 2000 . On 1st August 2002, following the revelations of this 'corngate' scandal, the New Zealand Government established a tough new testing regime for all shipments of imported sweetcorn, maize, rapeseed and soybean seeds to ensure zero GE contamination. "If the testing shows any contamination at all then the seeds will be rejected" explained the New Zealand Director of Plants Biosecurity, Richard Ivess.^{xxxviii} In August one seed lot of maize was found to contain GE contamination at less than 0.05% and was incinerated by the producers, Australian based Pacific Seeds. Pacific Seeds have since assured Greenpeace that they are also able to supply non-GE seeds at under the level of detection to the European, New Zealand and Australian markets.^{xxxix}

Position of EU governments on the EU seed contamination proposal.

Greenpeace understands the following to be the attitude of member states towards the Commission's current proposal^{x1}:

Austria – The Austrian government does not support establishing thresholds for GE seed contamination above 0.1% level of detection.

Belgium – The Flemish Minister for Agriculture favours a 0.1% threshold for GM seed contamination while his Walloon (French) counterpart is understood to favour the Commission's proposals.

Denmark – The Danish government, presently holding the EU presidency, stated it urgently wants to see a regulation dealing with GE contamination in seed. It has now been delegated to the Europa Select Committee of the Danish Parliament to determine which thresholds they favour.

France – The French government do not yet have a clear position on the proposed seed contamination directive and appears to be internally divided about broader GMO questions. The government recently gave approval for certain imported seed lots to enter the market with up to 0.5% GE contamination.

Germany - Agriculture Minister Renate Kunast has indicated that the thresholds for seed contamination should be set as low as possible; however an official German position awaits agreement between the ministries of Economics, Health, Environment and Research.

Greece- The Greek government already has in place legislation that establishes a purity tolerance of 0.3% for contamination for cross-pollinating plants including rape and maize and 0.5% for Cotton.

Italy – The publically stated position of the Italian Minister for Agriculture is for zero tolerance for GM contamination.

Luxembourg – The Luxembourg position in the standing committee on seeds has been to label any detectable GE contamination from zero and not to tolerate GE contamination levels above 0.3%, 0.5% and 0.7%.

Sweden – The Swedish government has so far not taken a final position although the Swedish representative in the standing committee on Seeds has expressed no objections to the Commissions proposed levels of 0.3%, 0.5% and 0.7% .

UK – While the UK government has not yet taken an official position on the Commission's proposal, the minister responsible for seeds, Michael Meacher, has indicated that he is very concerned about the impact on organic farming.

Save our seeds! The European public speaks out.

Over the last year a growing number of agricultural, environmental, consumer and trade organisations have expressed concern at the thresholds for GE seed contamination proposed by DG SANCO. A common 'Save Our Seeds' petition has been signed by over 300 organisations representing over 25 million members and also by around 70,000 individuals across Europe. It calls for a single threshold for GE contamination in seeds at the level of detection (currently 0.1%). The petition and a full list of signatories can be viewed online at

www.saveourseeds.org

Below is a partial list of signatories to the Save Our Seeds petition:

IFOAM International Federation of Organic Agricultural Movements, EU-Group; International
Greenpeace International; International
EURO COOP European Association of Consumer Cooperatives; International
CPE Coordination Paysanne Europeenne; International
Friends of the Earth Europe; International
Demeter International; International
ECO-PB, European Consortium for Organic Plant Breeding; International
GENET, European Network on Genetic Engineering with 20 member organisations; International
Grain Genetic Resources Action International; International
Aseed Europe; International
Agrarbündnis Österreich mit 18 Mitgliedsorganisationen; Austria
Arbeitsgemeinschaft Biolandbau; Austria
Arche Noah, Ges. z. Erhaltung und Verbreitung der Kulturpflanzenvielfalt; Austria
Bioernte Austria (Ernte für das Leben); Austria
FUJA, Front Uni des Jeunes Agriculteurs; Belgium
MAP, Mouvement d'Action Paysanne; Belgium
Milieu Actie Forum; Belgium
WERVEL Werkgroep voor een rechtvaardige en verantwoorde landbouw; Belgium
FiBL Forschungsinstitut für Biologischen Landbau, Switzerland
AbL Arbeitsgemeinschaft bäuerliche Landwirtschaft; Germany
AgrarBündnis e.V.; Germany
Allergieverein in Europa (AVE) e.V; Germany
Arbeitsgemeinschaft Evangelische Jugend auf dem Lande; Germany
Arbeitsgemeinschaft für biologisch dynamischen Landbau; Germany
ASW Aktionsgemeinschaft Solidarische Welt; Germany
BBU Bundesverband Bürgerinitiativen Umweltschutz; Germany
Bingenheimer Saatgut AG; Germany
Bioland Deutschland; Germany
BÖLW Bund Ökologische Lebensmittelwirtschaft; Germany
BUND Bund für Umwelt und Naturschutz Deutschland; Germany
Bundesfachverband Deutscher Reformhäuser (refo); Germany
Bündnis 90/ Die Grünen, 30 Kreis- und Ortsverbände; Germany
Claudia Roth, Parteivorsitzende Bündnis 90/ Die Grünen; Germany
DNR- Deutscher Naturschutzring (70 Organisationen); Germany
Euronatur - Stiftung Europäisches Naturerbe; Germany
Evangelisches Bauernwerk e.V.; Germany
Friedrich Wilhelm Graefe zu Baringdorf, MdEP; Germany
GLS Gemeinschaftsbank eG; Germany
Hermann Graf Hatzfeldt; Germany
Hiltrud Breyer, MdEP; Germany
Interessengemeinschaft der Milchviehalter; Germany
Katholische Landjugendbewegung Deutschlands e.V.; Germany
KED Kirchlicher Entwicklungsdienst Bayern; Germany
NABU-Naturschutzbund Deutschland; Germany
Naturfreunde Deutschlands e.V; Germany
Prinz Michael Salm zu Salm; Germany
Prof. Dr. Ernst-Ulrich von Weizsäcker, MdB; Germany
Prof. Dr. Michael Succow, Universität Greifswald; Germany
Schwäbischer Albverein; Germany
SÖL- Stiftung Ökologie und Landbau ; Germany
Verbraucher Initiative e.V. Bundesverband; Germany
Verbraucher-Zentrale Hessen; Germany
WWF Deutschland; Germany
Zukunftsstiftung Landwirtschaft, Germany
Aktive Consumers; Denmark
Green Families Denmark; Denmark
LØS -Danish Association for Sustainable Communities; Denmark
NOAH (Friends of the Earth Denmark); Denmark
Amigos de la Tierra; SPAIN
CECU-Confederación de Consumidores y Usuarios; SPAIN
Ecologistas en Acción; SPAIN
Association de développement de l'Agriculture Biologique; France
ATTAC France; France
Confederation Paysanne; France
Coordination Nationale pour la Defense des Semences Fermieres; France
FNAB Fédération Nationale d'Agriculture Biologique des régions de France; France
FNE France Nature Environnement; France
Les Amies de la Terre; France
Nature & Progrès, Fédération d'agriculture biologique; France
SOLAGRAL France; France
EEBE - Union of Professional Organic Farmers; Greece
GESASE- General Confederation of Greek Agrarian Association; Greece
Union of Greek Young Farmers; Greece
Associazione Raggio Verde; Italy
Legambiente; Italy
Archeveché de Luxembourg, Erzbistum Luxemburg; Luxembourg
Bauern Allianz, Luxemburg; Luxembourg
Chambre d'Agriculture, Luxemburg; Luxembourg
Freie Letzebuurger Bauerenverband; Luxembourg
L.C.G.B. (Lëtzeburger Chrëschtliche Gewerkschafts-Bond); Luxembourg

OGB-L; Luxembourg	Stichting Zaadgoed; Netherlands
Producteurs Luxembourgeois de Semences; Luxembourg	AGROBIO Associação Portuguesa de Agricultura Biológica; Portugal
Slow Food Luxembourg; Luxembourg	Associação de Desenvolvimento Rural de Basto; Portugal
Union Luxembourgeoise des Consommateurs; Luxembourg	Confederação Portuguesa das Associações de Defesa do Ambiente; Portugal
Veräin fir biologesch-dynamesch Landwirtschaft Lëtzebuerg; Luxembourg	SKIS, Sveriges Konsumenter i Samverkan, Swedish Consumer Coalition; Sweden
Verénegung fir biologesche Landbau Lëtzebuerg; Luxembourg	Småbrukare i Sjuhärads; Sweden
AKB, Alternative Konsumenten Bond; Netherlands	Five Year Freeze Campaign; UK
Dierenbescherming; Netherlands	Friends of the Earth; UK
Fondation Zaadgoed; Netherlands	Lord Peter Melchett; UK
Kerken in Aktie; Netherlands	National Association of Health Stores; UK
Milieudefensie; Netherlands	Patrick Holden; UK
Platform Biologica; Netherlands	Soil Association; UK
Stichting Natuur en Milieu; Netherlands	The Gaia Foundation; UK

ⁱ European Commission DG SANCO, *Discussion Document for the Standing Committee on Seeds and Propagating Material for Agriculture, Horticulture and Forestry*, 19 June 2000. Brussels

ⁱⁱ *Draft COMMISSION DIRECTIVE .../Ecof ... amending Council Directives 66/400/EEC, 66/401/EEC, 66/402/EEC, 66/403/EEC, 69/208/EEC, 70/458/EEC and Decision 95/232/EEC as regards additional conditions and requirements concerning the presence of genetically modified seed in seed lots of non-genetically modified varieties and the details of the information required for labelling in the case of seeds of genetically modified varieties* Brussels, 02.07.2002, P./secr/doc2001/va/1542en02july2002

http://www.zs-l.de/gmo/downloads/Seed_Directive_3_July_2002.pdf

ⁱⁱⁱ Approval for Growing GMO's under part C of Directive EU 90/220 has been granted for GE male sterile glufosinate resistant oilseed rape Ms1Rf1 produced by Plant Genetic Systems (now Aventis), Monsanto's BT maize Mon810, Syngenta's BT176 maize and Aventis T25 glufosinate resistant fodder maize.

^{iv} SCIENTIFIC COMMITTEE ON PLANTS *Opinion of the Scientific Committee on Plants concerning the adventitious presence of GM seeds in conventional seeds.* (Opinion adopted by the Committee on 7 March 2001) p2.

SCIENTIFIC COMMITTEE ON PLANTS SCP/GMO-SEED-CONT/002-FINAL 13 March 2001

http://europa.eu.int/comm/food/fs/sc/scp/out93_gmo_en.pdf

^v *ibid* p9.

^{vi} Greenpeace Greece, *Chronology of the GE Cotton Scandal in Greece*, (June 2002).

^{vii} A chronology of this seed contamination can be found at <http://www.envoy.dircon.co.uk/dig-it-up/diary.htm>

^{viii} Reuters, *Italy police seize more Monsanto seed in raid*, ROME (April 10 2001).

^{ix} For full list of signatories calling for zero tolerance approach see www.saveourseeds.org.

^x EuropaBio, *press release - GM Mix-up: the need of practical thresholds*, Brussels May 29th 2000

http://www.europabio.org/upload/articles/article_11.pdf

^{xi} for calculations see accompanying tables prepared by Dr Janet Cotter, Greenpeace Science Unit:

Table 1: Immediate Impact of Proposed GE Seed Contamination Directive on European Arable Land, Table 2:

Impact of Proposed GE Seed Contamination Directive on Arable Land of EU Accession States (including Turkey) Upon Enlargement,

Table 3: A worst- case scenario for impact of proposed GE Seed Contamination Directive on EU Arable Land (15 member states plus Accession states including Turkey)

^{xii} The land area of Brussels is 161 sq km (source =

http://www.economist.com/cities/findStory.cfm?city_id=BRU&folder=Facts-Figures)

^{xiii} *Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC.*

^{xiv} Biotechnology Advisory Unit, English Nature , *DEFRA Consultation 02/03-165 -Commission proposals on thresholds for the adventitious presence of approved GMOs in seeds. Response on behalf of the British Statutory Nature Conservation Agencies* (August 2002)

^{xv} For a full overview of European market rejection of GE ingredients see Greenpeace International , *The advantages of non-genetically engineered soya and corn for the Brazilian market* (2002).

^{xvi} Personal communication with Chantal Jaquet, Head of Environment Affairs at Carrefour.

^{xvii} P27. The Soil Association, *Seeds of doubt, North American farmers' experiences of GM crops* (Sept 2002), UK.

^{xviii} P 96. European Commission, Joint Research Centre ,Table 39 – Total monitoring costs for oilseed rape production, section 4.2.5 *Scenarios for co-existence of genetically modified, conventional and organic crops in European agriculture*, May 2002..

- ^{xix} Total EU Area figure for oilseed rape for 2000 was 3,035,000 ha. Table 4.4.1.1 (rapeseed), European Union, Directorate-General for Agriculture. *Agriculture in the European Union: Statistical and economic information 2001* (jan 2002) http://europa.eu.int/comm/agriculture/agrista/2001/table_en/index.htm
- ^{xx} *Comments of COPA/COGECA (Main European Farmers Association) SEM(02)09P3-jf* Brussels, 11 March 2002
- ^{xxi} p22. European Commission, Joint Research Centre, section 3.1.1, *Scenarios for co-existence of genetically modified, conventional and organic crops in European agriculture*, May 2002..
- ^{xxii} Saskatchewan Organic Directorate, *News Release: Organic Farmers Sue Monsanto and Aventis*, Saskatoon, January 10, 2002 –<http://www.saskorganic.com/oapf/pdf/press-rel-10jan02.pdf>
- ^{xxiii} p v. European Commission, Joint Research Centre, Conclusions, *Scenarios for co-existence of genetically modified, conventional and organic crops in European agriculture*, May 2002.
- ^{xxiv} The concept of farmers rights are recognised in *The International Undertaking on Plant Genetic Resources (IUPGR) Resolution 5/89*. See FAO, *What are Farmer Rights?* http://www.fao.org/DOCREP/x0255e/x0255e03.htm#P29_4338
- ^{xxv} p126. European Commission, Joint Research Centre section 7.1.1 *Scenarios for co-existence of genetically modified, conventional and organic crops in European agriculture*, May 2002.
- ^{xxvi} *Commission proposes to introduce through comitology tolerance levels for the adventitious presence of genetically modified organisms in conventional seeds – Letter to EU Commission* March 2002 by Dan Leskien, European Greens.
- ^{xxvii} http://www.parlinkom.at/pd/pm/XXI/AB/texte/024/AB02494_.doc
- ^{xxviii} http://www.parlinkom.at/pd/pm/XXI/AB/his/036/AB03653_.html
- ^{xxix} <http://www.minefi.gouv.fr/DGCCRF/actualities/index.html>
- ^{xxx} Agence France Presse, *Des traces d'OGM dans un quart des analyses de semences de maïs importées* - PARIS, (7 août 2002)
- ^{xxxi} Table of seed analysis results by federal counties compiled March 2002 by Greenpeace Germany
- ^{xxxii} Press release issued by the Greek Ministry of Agriculture on June 5th 2002 (in greek).
- ^{xxxiii} Information provided to Greenpeace Sweden by Swedish Seed Testing and Certification Institute.
- ^{xxxiv} <http://www.csl.gov.uk/prodserv/cons/GMI/GMI2.cfm#seedaudits>
- ^{xxxv} Robert Schubert, *Findin' non-GMO seed in the United States -Cropchoice Article #561* 17 Jan 2002 <http://www.cropchoice.com/leadstry.asp?recid=561>
- ^{xxxvi} see Thomas Fertl – Greenpeace Austria, *No genetically contaminated seeds: Austrian Regulation leads EU way to pure seeds*, (Oct 2002)
- ^{xxxvii} *Letter from Pioneer Austria to from the government of the federal county Vorarlberg*, 1. March 2002.
- ^{xxxviii} Associated Press Worldstream, *New Zealand adopts strict tests to keep out genetically modified seeds* (1st Aug 2002).
- ^{xxxix} Personal communication from Chris Bazley MD of Pacific Seeds to Greenpeace Australia, 3rd sept 2002.
- ^{xl} All of these reports are the result of personal communications with national governments of member states by Greenpeace campaigners in those countries.