

Fødevareminister Mariann Fischer Boel
Holbergsgade 2
1057 København K

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Kære Mariann Fischer Boel

Vedr: GMO-forurening af såsæd (Sanco 1542/02)

Undertegnede organisationer har set dit venlige svar af 20. september, til brev fra Greenpeace af 26. august 2002, omkring problemet med GMO-forurening af såsæd. I betragtning af den alvorlige situation er det ikke tilstrækkeligt blot at følge sagen nøje. I modsætning til EU's øvrige GMO-lovgivning, som direkte påvirkes, undrager såsædsdirektivet sig, som situationen er nu, demokratisk behandling. Så selvom der pt. blot er tale om et arbejdsdokument, skal der reageres nu for at forhindre en ødelæggende GMO-forurening på 0,3-0,7% af almindelig såsæd. GMO-forurening af såsæden vil helt grundlæggende skabe ødelæggende forhindringer for almindeligt GMO-frit landbrug – og i særdeleshed for økologisk landbrug¹ – og dermed både afskære forbrugerne fra et reelt valg og resultere i storstilet GMO-forurening i miljøet. På denne baggrund vil de undertegnede organisationer på det kraftigste opfordre ministeren til at sikre, at såsæden forbliver GMO-fri (0>0,1%).

GMO-forurening af såsæden vil medføre storstilet udsættelse af GMO på marker, hvorfra GMO spredes videre i naturen med uforudsigelige miljømæssige konsekvenser. GMO i såsæden vil også have overordentligt alvorlige konsekvenser for planteavlere, fødevareproducenters og forbrugeres mulighed for at kunne fravælge GMO. Konsekvenserne af GMO-forurening af såsæden er følgelig et alt for alvorligt spørgsmål til at kunne overlades alene til en embedsmandskomité. Der bør under rådsmødet 27.-29. november findes en mere demokratisk beslutningsprocedure for dette spørgsmål. Undertegnede organisationer henstiller på det kraftigste til, at såsæden fortsat holdes GMO-fri indtil detektionsgrænsen 0>0,1%. I modsat fald vil de negative konsekvenser af såsædsforureningen være enorme.

Omfattende GMO-forurening

Af de fire GMO-afgrøder (soja, raps, majs og bomuld) har raps og majs betydning i EU. Ca 10% af EU's marker er dyrket med disse to afgrøder. På dette ca 8 mio. hektar store areal ville der, hvis Kommissionens forslag om GMO-forurening af såsæd bliver vedtaget, blive dyrket næsten 7000 mio GMO-planter – vel at mærke på markerne hos de landmænd, som har valgt almindeligt GMO-frit landbrug.

Undergraver udsætningsdirektivet 2001/18

Ifølge udsætningsdirektivet skal GMO'er udsat i naturen, efterfølgende kontrolleres og overvåges således, at GMO'er kan trækkes tilbage, hvis der på trods af risikovurderingen alligevel viser sig at være fare for miljø eller sundhed. Overvågning og tilbagetrækning af de 7000 mio planter, der ifølge såsæds forslaget vil blive udsat, vil derimod være umuligt.

¹ I ministerens svar af 20. september 2002 til brev fra Greenpeace af 26. august 2002 henvises der til, at økologisk såsæd reguleres af økologiforordningen (2092/91), hvorfra det formentligt skulle forstås, at GMO-forurening af almindelig såsæd efter din vurdering ikke vil påvirke økologisk planteavl. I den forbindelse skal der gøres opmærksom på følgende:

- Der er ikke økologisk såsæd til rådighed for alle afgrødetyper. Dette er fortsat tilfældet for majs, som er en af de afgrøder, som særligt vil blive påvirket af GMO-forurening.
- For de afgrøder, hvor der er økologiske såsæd til rådighed, skal det erindres, at det der er tale om er, at man ved økologisk dyrkning opformerer en økologisk 2. generation såsæd på baggrund af en almindelig (u-økologisk) 1. generation. Det GMO indhold, der forefindes i 1. generation, vil bestemt ikke mindskes i 2. generation – snarere tværtimod. Så selv når 2091/91 for alvor føres ud i livet, vil GMO-forurenede såsæd forhindre økologisk landbrug.
- Det at skaffe denne 2. generations økologiske udsæd, er så problematisk, at kommissionen pt. arbejder på at forlænge den nuværende dispensation fra bestemmelserne 2092/91 indtil udgangen af 2003.

GMO-forurening af almindelig såsæd vil følgelig have direkte og ødelæggende indvirkning på økologisk landbrug. GMO på økologiske marker vil ikke blot reducere værdien af afgrøden, men vil for den enkelte landmand formentlig betyde, at økologi tilskuddet skal tilbagebetales.

Undergraver forordningerne om sporing og mærkning af foder og fødevarer

Hvis 0,3-0,7% af forureningen foregår, allerede før landmanden sår, vil det ifølge EU's egne videnskabelige vurderinger blive svært at overholde selv Kommissionens høje grænseværdi i det endelige produkt på 1%. (side 9 i vedlagte Memorandum).

Undergraver kommende regler om sameksistens og erstatningsansvar

Der er både i Danmark og EU-regler undervejs, som skal sikre, at GMO-landbrug (hvis det tillades) ikke resulterer i ødelæggende forurening af almindeligt og økologisk landbrug. I denne sammenhæng skal også erstatningsansvaret for de økonomiske skader forårsaget af GMO-forurening fastlægges. GMO-forurening i såsæden har direkte sammenhæng med, hvorvidt det er muligt for almindeligt landbrug at overleve i "sameksistens" med GMO-landbrug, og hvorvidt planteavlerne vil kunne søge erstatning for GMO-forurening når der allerede i såsæden har været 0,3-0,7% GMO-forurening.

Samfundsøkonomisk dyrt

Europæiske forbrugere vil have GMO-fri fødevarer, hvorfor det i den danske og europæiske fødevarerektor er standard kun at benytte ingredienser med GMO-indhold omkring detektionsniveauet (0,1%). Med 0,3-0,7% GMO allerede i såsæden, hvortil kommer GMO-indhold fra krydsbestøvning på marken, GMO-forurening fra høstmaskiner, og sammenblanding under tørring, opbevaring, transport og produktion, vil den råvare, planteavlerne leverer, være på lige under 1% GMO. Selv dette niveau vil, ifølge EU's Joint Research Centre (JRC), kun kunne opnås, hvis planteavlerne ændrer dyrkningspraksis. Der vil dog således ikke være nogen sikkerhedsmargin tilbage for foder- og fødevarereproducenterne, der skal undgå, at det færdige produkt overskrider den endelige grænseværdi. GMO-forurening af såsæden vil derfor formentlig medføre, at planteavlere selv vil skulle dække ekstraomkostninger til først at teste såsæden, og derefter deres afgrøder, for at kunne opnå kontrakt med producenterne. Producenterne vil ligeledes blive påført ekstraudgifter til kontrol og adskillelse. Begge led vil formentlig endvidere have omkostninger til forsikringer til at dække tab i tilfælde af, at deres anstrengelser mislykkes. Hertil skal lægges myndighedernes omkostninger i forbindelse med kontrol og certificering. En samfundsøkonomisk konsekvensvurdering af direktivforslaget bør endvidere tage følgende i betragtning:

- Det vil givetvis være samfundsøkonomisk billigere at GMO-teste nogle få tons såsæd end at teste flere hundrede tons afgrøder.
- Ved detektionsniveau (0%-0,1%) skal der kun testes med den billige kvalitative test. Hvis der derimod tillades 0,3%-0,7% GMO, skal den dyrere kvalitative test benyttes.
- Når såsæden er ren, vil det i områder hvor der ikke dyrkes GMO formentlig være tilstrækkeligt med stikprøve kontrol. Hvis der derimod tillades 0,3%-0,7% i såsæden, skal afgrøden kontrolleres i hvert eneste led – igen med de dyrere kvantitative test.
- Alvorlig forringelse af den økologiske landbrugsproduktions udviklingsmuligheder.

Disse samlede omkostninger vil langt overstige ekstraomkostningerne ved at pålægge frø-industrien at levere såsæd uden GMO-forurening. Også af samfundsøkonomiske hensyn er det derfor langt at foretrække, at GMO-forurening af såsæd holdes på detektionsniveauet (0%>0,1%).

Ingen praktiske problemer med 0,1 % grænseværdi i såsæd

Frøpartier bliver allerede testet for GMO-indhold, og der har i løbet af de sidste par år kun været få ladninger, hvor GMO-indholdet har oversteget 0,1% - selv når såsæden kom fra GMO-producerende lande som Canada og USA. Frø-industrien tilkendegiver selv, at de uden problemer vil kunne levere såsæd med GMO-indhold under 0,1%. Kommissionen har i sit forslag regnet bagud med udgangspunkt i forslaget om 1% bagatelgrænse i de endelige produkter. Fra dette udgangspunkt er 0,3-0,7% grænseværdierne for GMO i såsæden sat så højt, som det – hvis hele landbruget, foder- og fødevarereindustrien benytter forureningsbegrænsende foranstaltninger – ville være teknisk muligt. Vi foreslår i modsætning hertil at sætte grænseværdien så lavt, som det i praksis har vist sig muligt.

Forbruger- og miljømæssige konsekvenser

GMO-forurening af såsæden vil medføre, at mange producenter i praksis vil få svært ved at overholde grænseværdien i det endelige produkt. Det kan følgelig forventes, at mange producenter vil opgive at levere de GMO-fri varer forbrugerne efterspørger, og således mindske forbrugernes valg.

Undertegnede organisationer kan ikke udlægge Kommissionens forslag anderledes end, at man bevidst søger at fratage planteavlere, producenter og forbrugere deres frie (fra)valg overfor GMO-fødevarer.

Hvis det lykkedes at fratage forbrugerne deres frie valg, vil det kun kunne medføre, at der dyrkes mere GMO med de deraf følgende alvorlige miljøproblemer.

Af hensyn til miljø, landbrug, forbrugere og økologi henstiller undertegnede organisationer på det kraftigste til at ministeren sikrer, at såsæden forbliver GMO-fri. Undertegnede organisationer opfordrer derfor landbrugsministrene ved rådsmødet 27.-29. november til at placere dette alvorlige spørgsmål under en mere gennemskuelig beslutningsprocedure, der inddrager Europaparlamentets folkevalgte.

Det kan desuden sikres, at der ikke tillades over 0,1% GMO i såsæden, hvis grænseværdien for GMO i de endelige fødevarer fastsættes til 0,5%.

Undertegnede organisationer vil meget gerne, ved et eventuelt møde, orientere mere grundigt omkring problemstillingerne².

Med venlig hilsen

Forbrugerrådet
Danmarks Naturfredningsforening
Greenpeace
Økologisk Landsforening
NOAH
Danmarks Aktive Forbrugere
Biodynamisk Forbrugersammenslutning
Grønne Familier
Landsforeningen Praktisk Økologi



Dan Belusa
Greenpeace
dan.belusa@nordic.greenpeace.org
Tlf.: 3393 8660/5132 7911

² Foruden de vedlagte bilag bygger vurderingen her i brevet på følgende baggrundsmateriale:
EU-Kommissionen (2001) "Opinion of the Scientific Committee on Plants concerning the adventitious presence of GM seeds in conventional seeds" SCP/GMO-SEED-CONT/002-FINAL 13 marts 2001.
EU's Miljøagentur (2002) rapport nr 28 "GMOs: The significance of gene flow through pollen transfer".
EU's Joint Research Centre (2002) "Scenarios for co-existence of genetically modified, conventional and organic crops in European agriculture".
Soil Association (2002) "Seeds of Doubt"

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

Just over 10% (7.6 million hectares) of European arable land is currently planted with maize or oilseed rape. Since one variety of genetically engineered (GE) oilseed rape and two varieties of GE maize already have approval for growing in the EU, all of this land could be affected by the GE Seed Contamination Directive. This table shows by country how many genetically engineered plants could be released through seed contamination across the 15 European Union countries in the next growing season if the proposed thresholds for seed contamination in maize (0.5%) and oilseed rape (0.3%) are adopted.

6,850 million unregulated GE plants could be released across Europe. If planted together this many GE plants would represent a cumulative area of 32,091 hectares or 321km². Put another way that is equivalent to planting an area about twice the size of Brussels or covering 45,844 football pitches.

Crop areas and number of GE plants that would be growing in the EU at the proposed levels of contamination for GE seed (data for 2000 unless stated)																
	Total EU ⁱ	Belgium	Denmark	Germany	Greece	Spain	France	Ireland	Italy	Luxembourg	Netherlands	Austria	Portugal	Finland	Sweden	UK
Oilseed rape area (thousand hectares)	3 035	9	99	1 096	n/l	n/a	1 240	2	44	n/l	1	52	n/l	53	48	392
No. of hectares GE at 0.3% contamination	9 110	27	297	3 290	n/l	n/a	3 720	6	132	n/l	3	156	n/l	159	144	1 176
Plants per hectare = 500,000																
GE plants (millions)	4 550	13.5	149	1 640			1 860	3.00	66.0		1.50	78.0		79.5	72.0	588
Grain maize area (thousand hectares)	4 300	36	n/l	361	225	425	1 83	n/l	1 063	n/l	20	164	172	n/l	n/l	n/l
No. of hectares GE at 0.5 % contamination	21 500	180		1 810	1 130	2 130	9 170		5 320		100	820	860			
Plants per hectare = 100,000																
GE plants (millions)	2 150	18		181	113	213	917		532		10.0	82.0	86.0			
Silage/forage maize area (thousand hectares)	296	166 ⁱⁱ	1.78 ⁱⁱⁱ	n/a	n/a	n/a	n/a	13 ^{iv}	n/a	11.1 ^v	n/a	n/a	n/a	n/a	n/a	104 ^{vi}
No. of hectares GE at 0.5 % contamination	1 481	832	8.91			n/a	n/a	65		55.3						521
Plants per hectare = 100,000																
GE plants (millions)	148	83.2	0.891					6.50		5.53						52.1

Notes

n/a = data not available;
n/l = country not listed as growing that crop.

A FIFA-standard football pitch = 0.7 hectares

1km² = 100ha

Calculated data are given to three significant figures, whilst crop area data are given to the nearest 1000ha, or to three significant figures if below 100,000 hectares.

Data sources

Crop areas

Table 4.1.1.3 (grain maize), 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

Data for silage/forage maize are not given in the EU statistics. Data for this type of maize are reported for those countries where readily available from national statistics and, as such, are likely to be an underestimate of the EU acreage of silage/forage maize.

No. plants per hectare

Figures are for mid-range target established plant populations in the UK. The figure for silage maize is assumed to be the same as grain maize. Supplied by ADAS, UK, personal communication.

Footnotes

- i Totals for the 15 member states of the European Union (as of 1995).
- ii National Statistics Bureau, Belgium, <http://statbel.fgov.be>. Data for 2001
- iii Danish Directorate for Food, Fisheries and Agro Business, Ministry of Food, Agriculture and Fisheries. Data for 2001.
- iv Teagasc: Irish Agriculture and Food Development Authority. http://www.teagasc.ie/publications/2002/annualreport2000/annualreport2000_3.htm. Data for 2000
- v Service d'Economie Rural, Ministry of Agriculture, Luxembourg. Maize total. A small proportion of this may be grain maize but this does not affect the total number of plants.
- vi UK DEFRA, Agricultural and Horticultural Census, June 2001. Data for June 2000 excl. Scotland. http://www.defra.gov.uk/esg/work.htm/Notices/june_uk.pdf

Table 2: Impact of Proposed GE Seed Contamination Directive on Arable Land of EU Accession States (including Turkey) Upon Enlargement

Close to 6.9 million hectares of arable land in the 13 EU accession countries (inc Turkey) are currently planted with maize or oilseed rape. Since one variety of genetically engineered (GE) oilseed rape and two varieties of GE maize already have approval for growing in the EU, all of this land could be affected by the seed contamination directive. This table shows by country how many genetically engineered plants could be released through seed contamination across the 13 accession countries if the proposed thresholds for seed contamination in maize (0.5%) and oilseed rape (0.3%) are adopted.

11,430 million unregulated GE plants could be released across an enlarged Europe (EU 15 plus accession states including Turkey). If planted together this many GE plants would represent a cumulative area of 64,271 hectares or over 642km². That is equivalent to planting an area of 91,815 football pitches

Crop areas and number of GE plants that would be growing at the proposed EU levels of contamination for GE seed in the Accession States (data for 2000)														
	Total for accession states	Bulgaria	Cyprus	Czech Rep	Estonia	Hungary	Lithuania	Latvia	Malta	Poland	Romania	Slovenia	Slovakia	Turkey
Oilseed rape area (thousand hectares)	1 128	n/a	n/a	324	28.8	116	55.5	6.9	n/a	437	68.4	0.122	91.7	
No. of hectares GE at 0.3 % contamination	3 380			972	86	347	167	21		1 310	205	0.366	275	
Plants per hectare = 500,000														
GE plants (millions)	1 690			486	43.2	174	83.3	10.4		655	103	0.183	138	
Grain maize area (thousand hectares)	5 766	576	n/a	473	0	1 193	n/a	0	n/a	152	3 049	48	145	555
No. of hectares GE at 0.5 % contamination	28 800	2 880		236		5 960				761	15 200	240	725	2 780
Plants per hectare = 100,000														
GE plants (millions)	2 880	288		23.6		596				76.1	1520	24.0	72.5	277

Notes

n/a = data not available
1 km² = 100 hectares

A FIFA-standard football pitch = 0.7 hectares

Calculated data are given to 3 significant figures, whilst crop area data are given to the nearest 1000 hectares, or to 3 significant figures if below 100,000 hectares where available.

Data sources

Crop areas: Data supplied by Eurostat Datashop upon request. <http://europa.eu.int/comm/eurostat/>
Silage/forage maize data were not available for accession countries.

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)

The seed contamination directive allows for eventual contamination of soya, cotton and sugarbeet seeds with genetically engineered varieties should pending applications receive a growing approval. Across the EU15 and accession countries (inc Turkey) over 18.3 million hectares of arable land are currently planted with soy, cotton, sugarbeet, maize or oilseed rape. All of this land could be affected by GE seed contamination directive. This table shows by country how many genetically engineered (GE) plants could be released through seed contamination across the 13 accession countries in if the proposed thresholds for seed contamination in soy (0.7%) maize, cotton, sugar beet (0.5%) and oilseed rape (0.3%) are adopted and pending applications are approved. 14,580 million unregulated GE plants would represent a cumulative area of 84,550 hectares or 845km² – equivalent to planting out 120,785 football pitches.

Crop areas and number of GE plants that would be growing in the 15 EU states and 13 accession states at the proposed levels of contamination for GE seed (cotton is given as 0.5%) (data for 2000 unless stated)

	3 035	9	99	1 096	n/l	n/a	1 240	2	44	n/l	1	52	n/l	53	48	392	n/a	n/a	1 128	n/a	324	28.8	116	55.5	6.9	n/a	437	68.4	0.122	91.7		
Oilseed rape area (100oha)	3 035	9	99	1 096	n/l	n/a	1 240	2	44	n/l	1	52	n/l	53	48	392	n/a	n/a	1 128	n/a	324	28.8	116	55.5	6.9	n/a	437	68.4	0.122	91.7		
No. of hectares GE at																																
0.3% contamination		9 110	27	297	3 290		3 720	6	132		3	156		159	144	1 176			3 380		972	86	347	167	21	1 310	205	0.366	275			
Plants/ha = 500,000																																
GE plants (millions)	4 550	13.5	149	1 640		1 860	3 000	66.0	1 500	78.0	1 500	78.0	79.5	72.0	588	1 690			1 690		486	43.2	174	83.3	10.4	655	103	0.183	138			
Grain maize area (100oha)	4 300	36	n/l	361	225	425	1 83	n/l	1 063	n/l	20	164	172	n/l	n/l	n/l			5 766	576	n/a	473	0	1 193	n/a	0	n/a	152	3 049	48	145	
No. of hectares a GE at																																
0.5% contamination		21 500	180	1 810	1 130	9 170	5 320	100	820	860	100	820	860	100	820	860			28 800	2 880	2 36	5 960		761	15 200	240	725	2 780				
Plants/ha = 100,000																																
No. GE plants (millions)	2 150	18	181	1 130	213	917	532	100	820	860	100	820	860	100	820	860			28 800	2 880	2 36	5 960		761	15 200	240	725	2 780				
Silage/forage maize area (100oha)	296	166 ⁱⁱⁱ	n/a	1 78 ⁱⁱⁱ	n/a	n/a	n/a	n/a	13 ^{iv}	n/a	11 ^v	n/a	n/a	n/a	n/a	104 ^{vi}			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
No. of hectares GE at																																
0.5% contamination		1 481	832	8.91	n/a	n/a	65	55.3																								
Plants/ha = 100,000																																
No. GE plants (millions)	1 481	832	8.91	n/a	n/a	65	55.3																									
Soybean area (100oha)	349	n/l	n/l	1	n/a	n/a	90	n/l	242	n/l	15	n/l	n/l	n/l	n/l	n/l			147	n/a	n/a	1.88	0	22.2	n/a	0	n/a	n/a	117	n/a	5.91	
No. of hectares GE at																																
0.7% contamination		2 440	7	630	1 690	805	50	105																								
Plants/ha = 475,000																																
No. GE plants (millions)	1 160	3	299	805	50	105		105																								
Sugarbeet area (100oha)	1 806	96	56	449	43	129	386	31	220	n/l	109	45	5	31	55	151			1 062	1.94	n/a	61.3	0	57.5	27.7	12.7	n/a	333	48.4	8.12	31.7	
No. of hectares GE at																																
0.5% contamination		9 030	480	2 250	215	645	1 930	155	1 100	545	225	25	155	275	755	5 310			5 310	9.70	306	287	139	63.5	1 670	242	40.6	158	2400			
Plants/ha = 75,000																																
No. GE plants (millions)	677	36.0	210	168	16.1	48.4	145	11.6	82.5	40.9	16.9	1.88	11.6	20.6	56.6	398			398	0.73	23.0	23.0	139	63.5	1 670	242	40.6	158	2400			
Cotton area (100oha)	494	405	88.9																													
No. of hectares GE at																																
0.5% contamination		2 470	445	2 030	445	2 030	445	2 030	445	2 030	445	2 030	445	2 030	445	2 030			5 310	9.70	306	287	139	63.5	1 670	242	40.6	158	2400			
Seeds/ha = 176,000 (est)																																
GE plants (millions)	435	356	78.2																													

Notes
n/a = data not available; n/l = country not listed as growing that crop.
http://eur-lex.europa.eu/eur-lex/acturi/agriculture/agriculture2000/table_cen/index.htm
Data for silage/forage maize are not given in the EU statistics. Data for this type of maize are reported for those countries where readily available from national statistics and, as such, are likely to be an underestimate of the EU acreage of silage/forage maize. Crop areas for non-EU: Data supplied by Eurostat sathop upon request. http://europa.eu.int/com/food/agriculture/food_agriculture_fisheries_data_for_2001

European Union, Statistical and economic information 2001. (Jan 2002)
http://www.teagasc.ie/publications/2002/annualreport2000/annualreport2000.htm. Data for 2000
V) Service d'Economie Rural, Ministry of Agriculture, Luxembourg, Maize total. A small proportion of this may be grain maize but this does not affect the total number of plants.
vi) UK DEFRA, Agricultural and Horticultural Census, June 2001. Data for June 2000 excl. Scotland
http://www.defra.gov.uk/esg/work.htm/Notices/june_uk.pdf
Teagasc: Irish Agriculture and Food Development Authority
http://www.teagasc.ie/publications/2002/annualreport2000/annualreport2000.htm. Data for 2000
iii) National Statistics Bureau, Belgium. http://statbel.fgov.be. Data for 2001
http://www.dcfra.gov.uk/agriculture/and_agro_business_ministry_of_food_agriculture_and_fisheries_data_for_2001

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.^{xv} 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^{xx} 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 uncontentious 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

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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 'cornagate' 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 proposal⁴:

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

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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
Bioemte Austria (Emte 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 Milchviehhalter; 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
Legaambiente; Italy
Archevêché 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
Producteurs Luxembourgeois de Semences; Luxembourg

Slow Food Luxembourg; Luxembourg
Union Luxembourgeoise des Consommateurs;
Lëtzebuerg
Veräin fir biologesch-dynamesch Landwirtschaft
Lëtzebuerg; Luxembourg
Verénegung fir biologesche Landbau Lëtzebuerg;
Luxembourg
AKB, Alternative Konsumenten Bond; Netherlands
Dierenbescherming; Netherlands
Fondation Zaadgoed; Netherlands
Kerken in Aktie; Netherlands
Milieudéfensie; Netherlands
Platform Biologica; Netherlands
Stichting Natuur en Milieu; Netherlands
Stichting Zaadgoed; Netherlands

AGROBIO Associação Portuguesa de Agricultura
Biológica; Portugal
Associação de Desenvolvimento Rural de Basto; Portugal
Confederação Portuguesa das Associações de Defesa do
Ambiente; Portugal
SKIS, Sveriges Konsumenter i Samverkan, Swedish
Consumer Coalition; Sweden
Småbrukare i Sjuhårad; Sweden
Five Year Freeze Campaign; UK
Friends of the Earth; UK
Lord Peter Melchett; UK
National Association of Health Stores; UK
Patrick Holden; UK
Soil Association; UK
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..

^{xxix} 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

^{xxx} *Comments of COPA/COGECA (Main European Farmers Association) SEM(02)09P3-jf* Brussels, 11 March 2002

^{xxxi} 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..

^{xxxi} Saskatchewan Organic Directorate, *News Release: Organic Farmers Sue Monsanto and Aventis*, Saskatoon, January 10, 2002 –<http://www.saskorganic.com/oapt/pdf/press-rel-10jan02.pdf>

^{xxxi} p v. European Commission, Joint Research Centre, Conclusions, *Scenarios for co-existence of genetically modified, conventional and organic crops in European agriculture*, May 2002.

^{xxxi} 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

^{xxxi} 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.

^{xxxi} *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.

^{xxxi} http://www.parlinkom.at/pd/pm/XXI/AB/texte/024/AB02494_.doc

^{xxxi} http://www.parlinkom.at/pd/pm/XXI/AB/his/036/AB03653_.html

^{xxxi} <http://www.minefi.gouv.fr/DGCCRF/actualities/index.html>

^{xxxi} 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

^{xxxi} Press release issued by the Greek Ministry of Agriculture on June 5th 2002 (in greek).

^{xxxi} Information provided to Greenpeace Sweden by Swedish Seed Testing and Certification

Institute.

^{xxxi} <http://www.csl.gov.uk/prodserv/cons/GMI/GMI2.cfm#seedaudits>

^{xxxi} Robert Schubert, *Findin' non-GMO seed in the United States -Cropchoice Article #561* 17 Jan 2002

<http://www.cropchoice.com/leadstry.asp?recid=561>

^{xxxi} see Thomas Fertl – Greenpeace Austria, *No genetically contaminated seeds: Austrian Regulation leads EU way to pure seeds*, (Oct 2002)

^{xxxi} *Letter from Pioneer Austria to from the government of the federal county Vorarlberg*, 1. March 2002.

^{xxxi} Associated Press Worldstream, *New Zealand adopts strict tests to keep out genetically modified seeds* (1st Aug 2002).

^{xxxi} Personal communication from Chris Bazley MD of Pacific Seeds to Greenpeace Australia, 3rd sept 2002.

^{xi} All of these reports are the result of personal communications with national governments of member states by Greenpeace campaigners in those countries.

Memorandum

Prepared by the Foundation on Future Farming in August 2002
Contact: Zukunftsstiftung Landwirtschaft, Rungstr. 19, 10179 Berlin, Germany
Phone +49 30 27590309, email: haerlin@zs-l.de

On the draft Commission Directive of July 2, 2002, regarding adventitious and technically unavoidable presence of genetically modified seed in lots of non-genetically modified varieties, SANCO/1542/02 July 2002¹

Summary:

The proposed thresholds in this Directive for permitted levels of contamination² in rape (0.3%), maize, beet, tomatoes, potatoes (0.5%) and soya (0.7%) for tolerable adventitious presence of GMOs, which would not even need to be labelled, should be replaced with a single general purity standard at the technically reliable detection level of 0.1%

- 1. for reasons of environmental protection and risk management,*
- 2. to preserve freedom of choice for farmers, producers, traders and consumers,*
- 3. in consideration of practical feasibility within the entire production and processing chain of the food industry,*
- 4. in consideration of the economic impact on affected companies and costs of public administration.*

The considerations in this memorandum do not refer to the principal question whether GMOs should be used in agriculture at all or not. All facts and figures referred to are derived from documents, either prepared or commissioned by the European Union and its institutions.

Environmental protection

Currently there are no releases of genetically modified organisms (GMOs) on a commercial scale within the EU (with the sole exception of approx. 10,000 ha of Bt maize in Spain). Taking into consideration the precautionary principle and sustainable concepts for the future of agriculture, we believe that this situation should remain unchanged. General concerns about the environmental impacts of the proposed Directive have been stated by Greenpeace and other organisations³

¹ 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

² The use of the standard term "contamination" is used in this context should simply as shorthand for the "adventitious or technically unavoidable presence of..."

³ Greenpeace submission: http://www.zs-l.de/gmo/downloads/greenpeace_submission.pdf, for other submissions also see http://www.zs-l.de/saveourseeds/sos_documents.html

From the environmental point of view, it should first be stated that a *general contamination of all conventional and organic seed* with GMOs, as envisaged by the draft Directive, would constitute a special form of large scale GMO releases, previously not anticipated. In addition to the commercial cultivation of genetically modified varieties on clearly identified and, where relevant, restricted areas based on authorisation under Directive 2001/18⁴ on the deliberate release of GMOs and appropriate plant variety protection legislation, the proposed Directive would lead to widespread uncontrolled release of GMOs across all land used for production of the varieties concerned.

The monitoring of releases prescribed by Directive 2001/18 would need to be conducted on a massive scale – a scale not previously envisaged. It would be impossible to prevent or control the outcrossing of released GMOs with wild relatives where these are growing nearby. Even in nature conservation areas or other reserves, it would not be possible to guarantee that no GMOs were present. Recall measures, such as those necessary in the years 2000/2001 in America for the maize variety 'Starlink', would be presented with immense practical problems, rendering them *de facto* virtually impossible.

Finally it should be borne in mind that, in addition to authorisation in accordance with the EU Deliberate Release Directive 2001/18, a genetically modified variety must be approved under Plant Variety Protection legislation. Approval may be refused and have been refused either at national or at European level for good reasons beyond the safety issues covered by Directive 2001/18. However the proposed Directive exclusively refers to authorisation under Directive 2001/18, i.e. it would open up the possibility of contamination with varieties not approved for commercial introduction under national or European Seed legislation.

Conclusions:

- 1. The consequence of the Commission's proposal for general tolerance levels of GMO contamination of conventional and organic seed not labelled as genetically modified would be a large-scale release of GMOs which could neither be monitored nor recalled.***
- 2. This would make the legal provisions concerning the authorization of releases for limited periods of time and associated monitoring substantially more difficult if not impossible to enforce.***
- 3. The impacts of the Directive on environmental protection and nature conservation would be so serious that the only appropriate legal basis for its adoption would be the environment-related provisions of the European Treaties, and not a Commission Directive in the framework of the Common Agricultural Policy.***

Freedom of choice for consumers and producers

The principle that genetically engineered foods should only be introduced if and to a degree that protects consumers' freedom of choice, other concerns notwithstanding, is commonly held by the government and the European Union. It is also generally acknowledged that citizens expect freedom of choice not only in relation to the issue of the safety of foods for human health, but also increasingly as regards the form of production. In view of the fact that a quite overwhelming majority of our population and of all EU citizens reject GMOs in their foods, their introduction to the market would at least require to preserve the right of this majority to avoid genetic engineering. It is obvious that a guarantee of seed purity forms the indispensable precondition to this requirement.

⁴ 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. The Directive enters into force on October 17 2002.

A general contamination of seed would substantially restrict this freedom of choice for citizens. In practically all foods containing the relevant ingredients (maize, soya, rape, beet, potatoes) a proportion of GMOs would have to be expected. This would also affect products from organic production.

The Novel Food Regulation 258/97 currently undergoing amendment ⁵ presently provides for a maximum threshold of 1% (per ingredient) of adventitious contamination with GMOs, if these are authorised within the EU. Below this threshold, the product need not be labelled as genetically modified. These thresholds were defined as a result of practical considerations relating to bulk commodities such as maize and soya imported from non-member states since 1996.

By using European ingredients and refraining from the use of the imported products in question from the USA, Canada and Argentina, currently contamination can be avoided almost completely. At least, these produce flows have not presented any risk of coming close to the threshold for labelling. The majority of food manufacturers and food traders in the European Union are currently pursuing this strategy in order to guarantee their customers that foods, and increasingly also the feedstuffs used in production of animal-based products, are free of GMOs, and so as to avoid having to label their products as genetically modified. This would no longer be possible after introduction of the draft Directive under debate here.

For all processing companies, the question of GMO contamination would be an additional risk which in many cases will necessitate continuous controls and appropriate preventive measures. These requirements would be passed on to trade intermediaries, and in turn to producers, by demanding corresponding certificates and test results. The burden of proof is fundamentally incumbent on the suppliers concerned, i.e. those wishing to avoid GMOs in their products. This is an unreasonable burden to place on members of the food industry who wish to supply products free from GMOs.

A particular problem arises for organic enterprises, where any use of GMOs is prohibited according to the Council Regulation (EC) No.1804/99 on organic production. The Regulation as it stands makes does not provide any *de minimis* thresholds regarding GMOs. Organic organisations oppose such thresholds, as they would cause considerable harm to the integrity and image of their products.

Conclusions:

- 1. Citizens' freedom of choice with regard to GMOs in their food would be severely restricted by the Directive.***
- 2. The possibilities for food processing companies and traders to refrain from the use of GMOs would be massively undermined by the Directive.***
- 3. The legal obligation to refrain from the use of GMOs in organic products would be rendered practically impossible in many cases.***

⁵ Regulation (EC) No 258/97 of the European Parliament and of the Council of 27 January 1997 concerning novel foods and novel food ingredients, Official Journal L 043, 14/02/1997 P 0001 - 0006. Currently undergoing amendment by
1.Regulation on traceability of GMOs, GM food, feed (COM(2002) 182) 2. Regulation on genetically modified food and feed (COM(2001) 425)

Freedom of choice for farmers

Seeds are at the root of the food production chain. Their quality essentially determines whether farmers can make reasonable efforts to guarantee that their production is free of GMOs and whether they will be in a position to clearly identify the causative agents of potential contamination of their products and where appropriate hold them liable for losses. It also determines whether it is possible for farmers to reproduce and further develop their own seed without risking an increase in contamination. In this respect, the prospect of contamination in the first generation emerging more strongly in the second generation cannot be ruled out. It should also be considered that any average level of contamination of particular seed lots on individual fields can deviate downward but also upward considerably.

Farmers, who practise their management not only in accordance with the current market-regulations, but also according to their own agricultural principles and convictions, cannot be expected to use seed which may contain between 30 and 70 m² GMOs per hectare without the right to know or any means of control.

Farms under organic management, which rule out the use of GMOs on principle and which are also legally obliged to do so by Council Regulation (EC) No.1804/99 on organic production, would to all intents and purposes be prevented from obtaining seed supplies on the open market. The only alternative would be a compulsory definition of specific GMO thresholds for organic products. Both options would be unacceptable, both politically and economically.

Conclusions:

- 1. The right of farmers to produce without using GMOs would be effectively voided.***
- 2. Farmers would no longer be in a position to ascertain whether and which GMOs they were producing and could no longer provide relevant guarantees to their customers and neighbours.***
- 3. The opportunity for farmers to propagate from varieties once acquired would be associated with incalculable risks and therefore severely restricted.***
- 4. Farmers practising organic agriculture would be forced to abandon either their principles or their livelihoods.***

Practical feasibility

So far contamination of seed with GMOs has not become a critical problem, although instances of such contamination have repeatedly been proven. Currently there is a 'gentlemen's agreement' in the Standing Committee on Seed that member states will tolerate contamination of up to 0.5% with varieties authorized in the EU. In Austria, a regulation on seed⁶ was passed last year which tolerates no contamination in excess of the detection threshold of 0.1%, without this having caused any problems. Italy too has announced a 'zero tolerance' policy on contamination, which is currently also being enforced in the courts. Systematic test results available from EU member states indicate that contamination in excess of 0.1% is found only in isolated cases of imported seed. The fact that the great majority of imported seed, even from the USA (where 35% of maize and 70% of soya and cotton are genetically modified), is found not to be contaminated, demonstrates the possibility of complying with strict regulations on purity.

⁶ <http://www.bgbl.at/CIC/BASIS/bgblpdf/www/pdf/DDD/2001b47801>

The Commission Directive should provide effective regulation particularly in the event that GMOs are released in Europe on a commercial scale in future. In this case it can be assumed that in addition to the unlabelled contamination permitted in the seed, other contamination of cultivated crops is likely to occur through cross-pollination, volunteers from overwintered seed and mixing in downstream sectors.

Scientists are not yet fully in agreement on the probability, frequency and rate of the spread of outcrossing and volunteers from shed seed. Nor has enough documented experience become available. The EU's Scientific Committee on Plants gave an Opinion in March 2001⁷ which made reference to this. At the same time it presented provisional estimates of the contamination to be expected for rape, maize and sugar beet, based on the thresholds for seed proposed by the Commission at that time. On the basis of these estimates, the Committee responded with a cautious 'yes' to the Commission's question as to whether its proposed thresholds for seed ensured that the limit for adventitious contamination with GMOs defined in Commission Regulation 49/2000⁸ concerning compulsory labelling of GMOs in *foodstuffs* (and in future also feedstuffs) would not be exceeded.

Table 1. Estimated average potential rates of adventitious presence occurring at various stages during on farm production.

	Oilseed rape (fully fertile)	Maize	Sugar beet
Seed	0.3%	0.3%	0.5%
Drilling	0%	0%	0%
Cultivation	0%	0%	0%
Cross pollination	0.2%	0.2%	0%
Volunteers	0.2%	0%	0.05%
Harvesting	0.01%	0.01%	0.01%
Transport	0.05%	0.01%	0.01%
Storage	0.05%	0.05%	0.1%
% achieved	0.81%	0.57%	0.67%

These figures are mean values and assume good agricultural practice including reasonable attempts to isolate crops and segregate products. The figures are largely derived from the ongoing ESTO study⁶ of the co-existence of GM and non-GM crops. The final % achieved is dependent on several variables.

Table 1: Estimated average potential contamination, as estimated by the EU Scientific Committee on Plants (Source: SCP Opinion, *ibid* p.8)

It can be deduced from this estimate that the mathematical safety margin between seed contamination and product contamination assumed by the Committee is already exceedingly

⁷ 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)

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

⁸The labelling regulations which currently apply are based on Commission Regulation (EC) No. 49/2000

http://europa.eu.int/eur-lex/pri/de/oj/dat/2000/l_006/l_00620000111de00130014.pdf

amending Council Regulation (EC) No 1139/98

http://europa.eu.int/eur-lex/pri/de/oj/dat/1998/l_159/l_15919980603de00040007.pdf

tight. In the case of maize, the Commission has meanwhile proposed a threshold of 0.5% instead of the original 0.3%.

The Committee's estimate works on the assumption of compliance with good agricultural practice, which includes additional measures carried out by all farmers to separate harvested crops, control volunteers and avoid outcrossing. However, practical experience in many regions of the European Union, but also for example in the USA, counsels caution in relation to large-scale community-wide adoption of such measures, which generally involve additional effort and costs.

The Commission regularly invokes the Opinion of the Scientific Committee in determining its proposed thresholds, yet in the recent past it repeatedly called into question the reliability of the computer models and scenarios of a study by the Commission's Joint Research Centre (JRC)⁹, which the Committee in turn has used as a main reference. The Commission rightly pointed out that the scenarios involved were theoretical and had not been empirically verified.

Given this current state of knowledge, it must be assumed that the assumptions on which the Directive is based could change significantly in the light of further research and experience. Furthermore regular deviations can be expected from the average values assumed in this connection. In particular, different scientific studies indicate that the rate of outcrossing can vary substantially depending on natural conditions (e.g. wind direction and strength, behaviour of bees and other pollinators, the competitive ability of GM plants, etc.). The projections of the JRC on which the Scientific Committee based its estimates serve as illustration.

Table B: Levels of adventitious presence of GM maize in non-GM grain maize production in conventional and organic agriculture with current and with recommended farming practices (50% GMOs in the region)

Farm type	Intensive maize cultivation area				Non-intensive maize cultivation area		
	Conventional France (50% of GMOs in and outside the farm)	Organic large	Organic small	Conventional Italy (50% of GMOs in and outside the farm)	Conventional (50% of GMOs in and outside the farm)	Organic large	Organic small
Farm characteristics							
Farm area	60 ha	60 ha	10 ha	50 ha	100 ha	100 ha	15 ha
Plot size	3-4 ha	3-4 ha	1 ha	8 ha	20 ha	20 ha	3 ha
Number of plots	14	14	1	3	1	1	1
Current practices							
Total rate of adventitious presence expected	2.25 % (+/- 0.6 %)	0.16 % (+/- 0.07%)	0.58 % (+/- 0.04%)	1.75 % (+/- 0.2%)	0.8 % (+/- 0.5%)	0.17 % (+/- 0.09%)	0.32 % (+/- 0.04%)
Best change of practices to meet threshold 1%	50 °days difference in flowering time + post-harvest management	Current practices	Current practices	Minimum distance 200m + post-harvest management	Post-harvest management	Current practices	Current practices
Total rate of adventitious presence expected	0.66 % (+/- 0.3 %)*			0.69% (+/- 0.3%)*	0.51 % (+/- 0.3 %)*		
Additional costs (€/ ha)	45.4 + n.d.	0	0	n.d.	n.d.	0	0

Table 2: Varying probability of contamination in maize production as estimated by the JRC with maximum level of seed contamination of 0.3% (Source: JRC *ibid* p.8)

⁹ European Commission, Joint Research Centre, Scenarios for co-existence of genetically modified, conventional and organic crops in European agriculture, May 2002.

In March 2001, this study was still designated and quoted by the Committee as an unpublished "ongoing ESTO Study", and was then published in May 2002 by the Joint Research Centre of the EU:

http://www.jrc.cec.eu.int/default.asp?sIdSz=our_work&sIdStSz=focus_on

In all cases, setting the threshold for seed at 0.1% would enable compliance with the labelling thresholds in foods and feedstuffs without problems, and also normally allow for an adequate safety margin. As a consequence, testing and prevention procedures in subsequent stages of the production chain would be rendered superfluous or at least could be substantially reduced. By the same token, the risk to be insured against would be reduced considerably. The JRC study also made explicit comments to this effect.

Conclusions:

- 1. To date there is no adequate scientific basis on which a serious assessment can be made of the cumulative risk of contamination.***
- 2. The statements of the Scientific Committee on Seed and the EU Joint Research Centre suggest the conclusion that the proposed thresholds for seed contamination would result in contamination of foods and feedstuffs from non-genetically-modified production that inadvertently exceeded the threshold for compulsory labelling on a regular basis.***
- 3. Maintaining the level of seed purity at the reliable detection threshold of 0.1% GMO is feasible according to every expert opinion; even if the seed is produced in countries and regions in which GM crops are also produced.***
- 4. The effort required of all the companies and institutions involved, with the exception of the seed producers, would be decisively reduced by such a purity standard and the likelihood of exceeding the thresholds for foods and feedstuffs, and all the attendant consequences, could be minimized in a manner that is sustained over the long term.***

Costs

Commercial production of GMOs in combination with mandatory labelling will raise the costs of production and processing of non-genetically-modified crops concerned, in the unanimous opinion of all experts. The study by the Joint Research Centre already mentioned tried to predict these costs for different varieties and methods of production. A calculation involving many unknowns, which can only provide points of reference as the EU Commission pointed out, who has now commissioned a further study. Nevertheless, from the data available, general conclusions can be drawn on likely costs in the various sectors.

The JRC estimated the additional production costs for maize and potato *crop production* and for *seed production* of rape, in each case for different conventional farms and organic farms. For maize it based the estimate on a maximum level of seed contamination of 0.3% rather than 0.5%, as now proposed by the Commission. In this calculation the costs of separation, testing and administration in subsequent stages of processing and trade have not yet been included; likewise the costs to the public purse, in particular in the area of inspections, agricultural information-gathering, documentation and consulting, and in the area of customs formalities. It must be assumed that an estimate of the total real costs incurred would have to be considerably higher.

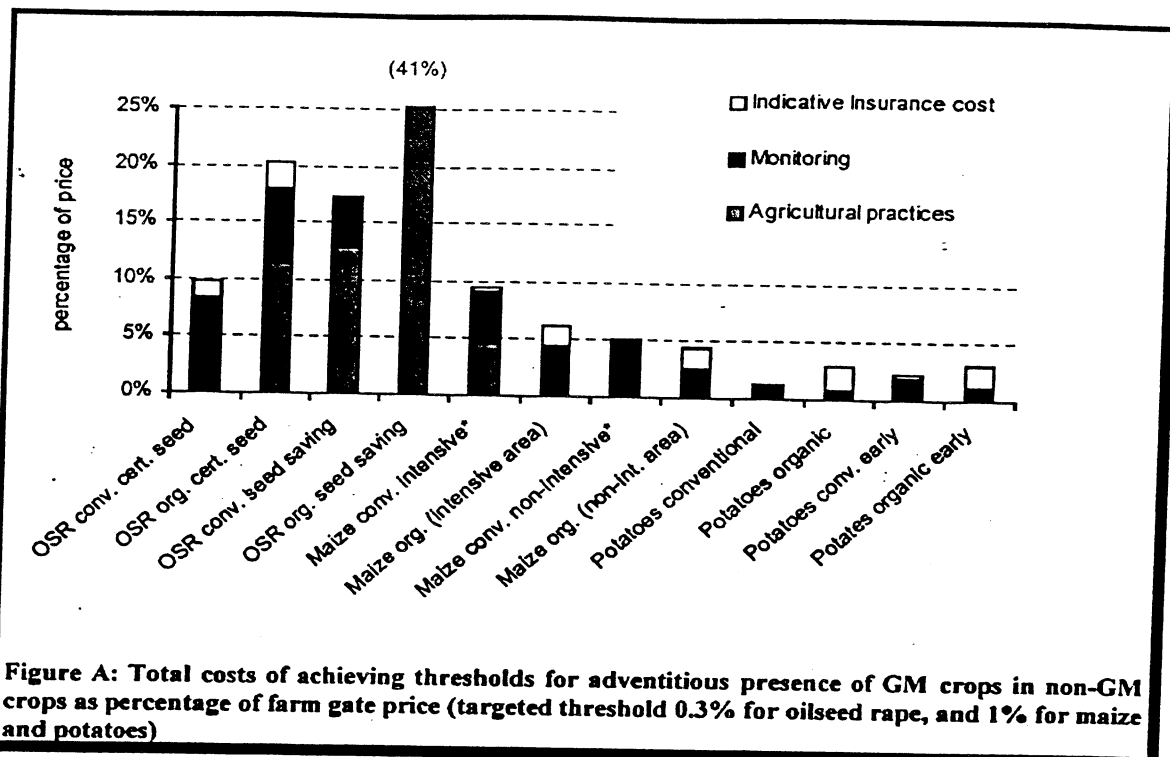


Figure A: Total costs of achieving thresholds for adventitious presence of GM crops in non-GM crops as percentage of farm gate price (targeted threshold 0.3% for oilseed rape, and 1% for maize and potatoes)

Table 3: Estimate by the EU Joint Research Centre of the additional production costs for various forms of production co-existing with GM crop production

From this survey it is clear that the additional costs of production are incurred largely due to monitoring and insurance, making a difference here of between 2 and 10 percent. The required changes in agricultural practice predominantly affect seed production (rape). Seed production of course only accounts for a small proportion of the areas under cultivation.

Seed production in rape and maize amounts to between 0.12 and 1.5 % of total production.

Comparison of annual production of seeds and crops of rape and maize within the European Union (metric tons)

Source: FAO-Statistical Databases. <http://apps.fao.org/default.htm>

Rape

year	Seed production EU	Crop production EU
1999	104,166	14,736,193
2000	102,873	11,706,157
2001	99,579	12,151,931

Maize

year	Seed production EU	Crop production EU
1999	667,181	73,092,073
2000	672,887	63,688,486
2001	699,673	72,967,830

As already explained, the additional costs of monitoring, certification and insurance throughout the downstream sectors would be substantially reduced if there were no immediate danger of inadvertently exceeding the labelling threshold or food and feed. In contrast, costs increase as

the thresholds for seed approach the thresholds for foods and feedstuffs. It seems no more than common sense to prevent these costs from arising at source, and not at diverse 'ends of the pipe'.

How the costs that arise are allocated within the market tends to depend on the strength of individual market players. Grocery and trade chains have so far shown little inclination in their purchasing policy to relieve their dependent suppliers of this risk. Many trade chains for example demand that suppliers provide full documentation to prove absence of genetically engineered ingredients (e.g. the technical standards of the British Retail Council). Some retailers demand thresholds as low as 0.1% in the final product at this moment. In any event they will be endeavouring to keep the risk as low as possible. A similar approach applies to the food industry.

Conclusions:

1. *The higher the permitted threshold for contamination of seed, the higher the additional costs along the entire subsequent production chain and the larger the number of companies affected.*
2. *The greater the safety margin between the threshold for seed and that for foods and feedstuffs, the less necessary and costly it will be to monitor, prevent and insure against the risk of contamination.*
3. *The smaller the number of affected companies, the easier it is to allocate additional costs incurred on the 'polluter pays' principle.*
4. *The additional costs incurred by the very few seed and propagation companies by setting the threshold at the technically reliable detection limit of 0.1% are not in any serious proportion to the additional direct and indirect costs farmers, processors, traders and the public sector would have to spend on prevention. These in turn would be reduced by a strict purity standard for conventional seed.*
5. *The present lack of clear provisions regarding liability and redress for GMO contamination under civil law harbours an economic risk for all players which is difficult to quantify.*

Schematic representation of the safety margin remaining when different threshold values apply, based on the assumptions of the Scientific Committee. The true variations could well prove to be even greater, because although the other factors are represented here as remaining static, they are likely to decrease dynamically as the threshold for seed contamination is reduced.

