

MEMORANDUM

The current generation of genetically modified (GM) crops unnecessarily risks the health of the population and the environment. Present knowledge is not sufficient to safely and predictably modify the plant genome, and the risks of serious side-effects far outweigh the benefits. We urge you to stop feeding the products of this infant science to our population and ban the release of these crops into the environment where they can never be recalled.

The current technology was rushed to market long before the science was worked out. Its introduction was accompanied with rigged research, bribes,¹ gagged scientists,² cover-ups³ and regulatory agencies stacked with industry representatives.⁴ With mounting evidence of serious health and environmental problems, we must act quickly to end the charade and this dangerous abuse of public trust.

Current safety assessments are inadequate to catch *most* of the harmful effects. When a foreign gene is artificially inserted into a living organism such as a GM crop, the preexisting natural gene of the organism can unintentionally be deleted, switched off, permanently switched on, mutated or fragmented⁵. Hundreds of natural genes may change the way they generate their proteins⁶ (basic molecules that form living cells), and even the newly introduced protein may differ from what was intended.

- Key assumptions used as the basis for safety claims have been overturned and several adverse findings suggest that GM foods are unsafe. GM-fed animals had problems with their growth, organ development and immune responsiveness, blood⁷ and liver cell⁸ formation, as well as damaged organs (bleeding stomachs,⁹ excessive cell growth,¹⁰ inflammation in lung tissue¹¹), sterility problems¹² and increased death rates,¹³ including among the offspring.¹⁴
- Risks are increased by the fact that the genes inserted into GM food not only survive digestion, but transfer into body organs and circulation. Transgenes or their fragments have been found in the blood, liver, spleen and kidneys.¹⁵ DNA can even travel via the placenta into the unborn.¹⁶ The only human clinical trial showed that transgenes from soy transfer into intestinal bacteria.¹⁷
- Claims that no one has gotten hurt from GM foods are misleading, since no one monitors human health impacts. However, one study found that soya allergies skyrocketed by 50 percent after GM soybeans were imported to the UK,¹⁸ and a deadly epidemic in the 1980s, that killed about 100 Americans and caused 5,000-10,000 to fall sick, was traced to a brand of a food supplement (L-tryptophan) that was genetically engineered.¹⁹
- Some GM crops create their own pesticide called *Bt*. Their approval relied on the assumption that *Bt*-toxin is not bioactive in mammals. But *Bt*-protoxins and -toxins caused powerful immune responses and abnormal and excessive cell growth in the small intestine of mice. According to medical and eyewitness reports, Filipinos living next to *Bt* cornfields developed symptoms during pollination and blood tests also showed an immune response to *Bt*.²⁰ Indian workers handling *Bt* cotton developed allergic responses.²¹ These *must* be followed up, and we *must* also find out if *Bt* genes transfer to gut bacteria like soya genes do. They could turn our internal flora into living pesticide factories.

Despite the Public Relation spin, GM crops *increase* the use of herbicides²², *do not increase* the average yield, and *endanger* food security. They are detrimental to sustainable and organic farming, and trap farmers in a cycle of indebtedness and dependence. They endanger biodiversity²³, harm beneficial insects²⁴, damage soil bacteria²⁵, contaminate non-GM varieties²⁶ and may persist in the environment for generations.²⁷

Insurance companies do not want to cover the risks inherent in GMOs.²⁸ Consumers do not want them.²⁹

Please act today to protect our health, our environment, and future generations.

¹ Monsanto fined \$1.5m for bribery (7 January, 2005) BBC News (<http://news.bbc.co.uk/1/hi/business/4153635.stm>)

² Delborne, J.A. (August 27, 2004) Transforming Scientific Dissent into Dissidence: Analysis of "The Pulse of Scientific Freedom in the Age of the Biotech Industry", Annual Conference of the Society for the Social Studies of Science, Ecole des Mines, Paris. (http://www.csi.enscm.fr/WebCSI/4S/download_paper/download_paper.php?paper=delborne.pdf)

³ GMO: French authorities wish confidentiality on sanitary studies: "OGM : les autorités françaises veulent la confidentialité sur les études sanitaires" (2005) (<http://www.novethic.fr/novethic/site/article/index.jsp?id=95406>)

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- ⁴ Among many other cases, (may 2004) 'Independent and objective consultants servicing the agricultural, agricultural supply trade, rural and food industries' (<http://www.gmwatch.org/profile1.asp?PrId=308&page=P>)
- ⁵ Latham et al, The Mutational Consequences of Plant Transformation, Journal of Biomedicine and Biotechnology 2006 p1-7 article ID 25376, <http://www.hindawi.com/journals/JBB/index.html>. See also: Collonier, C. & al "Characterization of commercial GMO inserts: a source of material to study genome fluidity", International Congress for Plant Molecular Biology (n°VII), Barcelona, 23-28th June 2003."
- ⁶ Srivastava, et al, Pharmacogenomics of the cystic fibrosis transmembrane conductance regulator (CFTR) and the cystic fibrosis drug CPX using genome microarray analysis, Mol Med. 1999 Nov;5(11):753-67.
- ⁷ French experts very disturbed by health effects of Monsanto GM corn (March 24 2004), (<http://www.gmwatch.org/archive2.asp?arcid=3308>), Translation of Le Monde article (June 2005) "L'expertise confidentielle sur un inquiétant mais transgénique," Confidential report on a worrying GM corn. Also see Spilling the Beans, (<http://www.seedsofdeception.com/Public/Newsletter/June05GMCornHealthDangerExposed/index.cfm>) by Herve Kempf, 22.04.04, (<http://www.lemonde.fr/web/article/0,1-0@2-3226,36-362061,0.html>)
- ⁸ Malatesta M, Caporaloni C, Gavaudan S, et al (2002) "Ultrastructural Morphometrical and Immunocytochemical Analyses of Hepatocyte Nuclei from Mice Fed on Genetically Modified Soybean". *Cell Structure and Function* Vol. 27, No. 4 pp.173-18. (<http://www.gmwatch.org/archive2.asp?arcid=3622>)
- ⁹ Pusztai, A. et al. (2003) Genetically Modified Foods: Potential Human Health Effects. In: Food Safety: Contaminants and Toxins (ed. JPF D'Mello) pp.347-372. CAB International, Wallingford Oxon, UK
- ¹⁰ Ewen, SWB & Pusztai, A. (1999) Effects of diets containing genetically modified potatoes expressing *Galanthus nivalis* lectin on rat small intestine. *Lancet* 354, 1727-1728.
- ¹¹ Prescott V.E., Campbell P.M., Moore A., Mattes J., Rothenberg M. E., Foster P.S., Higgins T.J.V., and Hogan S.P. (November 16, 2005) Transgenic Expression of Bean-Amylase Inhibitor in Peas Results in Altered Structure and Immunogenicity, Journal of Agricultural and Food Chemistry, Volume 53, Issue 23, pp. 9023– 9030 (<http://www.csiro.au/csiro/content/standard/pssp...html>)
- ¹² - Bt Corn Linked to Hog Breeding Problems (May 20, 2002), in http://www.gmfreesymru.org.uk/crops_bt.htm
- Sterility indirectly favoured by round-up ready GM crops : Richard S., Moslemi S., Sipahutar H., Benachour N., and Seralini G.-E. (2005) Differential Effects of Glyphosate and Roundup on Human Placental Cells and Aromatase Environmental Health Perspectives Volume 113, Number 6, June 2005. (<http://ehp.niehs.nih.gov/members/2005/7728/7728.pdf>)
- ¹³ The higher death rates were observed in a feeding study on chickens, submitted by Bayer CropScience, in support of their submittal for Chardon LL maize. Report for the Chardon LL Hearing, Non-Suitability of Genetically Engineered Feed for Animals, Dr. Eva Novotny, Scientists for Global Responsibility (May 2002). (http://www.sgr.org.uk/GenEng/animalfeel_all.pdf)
- ¹⁴ Ecosinform, 1, 2006, pp. 4-10. The study was small and the results were published as preliminary findings. Medical organizations and others are calling for the immediate repetition of the study, given the disturbing findings. www.seedsofdeception.com/Public/Newsletter/Oct05RatsDieWhenMothersEatGMSoy/index.cfm
- ¹⁵ Pusztai, A. and Bardocz, S. (2005) GMO in animal nutrition: potential benefits and risks. In "Biology of Nutrition in Growing Animals", R. Mosenthin, J. Zentek and T. Zebrowska (Eds.), Elsevier Limited, pp. 513-540.
- ¹⁶ Doerfler W; Schubert R (1994) "Uptake of foreign DNA from the environment: the gastrointestinal tract and the placenta as portals of entry," Journal of molecular genetics and genetics Vol 242: 495-504.
- ¹⁷ Netherwood, et al (Feb. 2, 2004) Assessing the survival of transgenic plant DNA in the human gastrointestinal tract, Nature Biotech, Vol 22.
- ¹⁸ Townsend M. (March 12, 1999) "Why Soya is a hidden destroyer," Daily Express.
- ¹⁹ The disease was called Eosinophilia-Myalgia Syndrome (EMS), which was traced to a genetically engineered brand of L-tryptophan, produced by the Japanese company Showa Denko. See E. A. Belongia et al, "An investigation of the cause of the eosinophilia-myalgia syndrome associated with tryptophan use," *The New England Journal of Medicine*, August 9, 1990. A representative for the US Center for Disease Control put the agency's final estimate between 5,000-10,000 illnesses and a survey among EMS victims puts the death toll between 80 and 125. For more discussion, see Smith J. (2003), *Seeds of Deception*, Chapter 4 Deadly Epidemic, Yes! Books 2003
- ²⁰ Preliminary evidence presented at a conference by the Norwegian Institute for Gene Ecology, for delegates to the 2004 UN Biosafety Protocol Conference. See <http://www.seedsofdeception.com/utility/showArticle/?objectID=36>, as well as <http://www.i-sis.org.uk/GMBanLongOverdue.php>.
- ²¹ "Bt cotton causing allergic reaction; cattle dead" (November 23, 2005) <http://news.webindia123.com/news/showdetails.asp?id=170692&cat=Health>
- ²² Benbrook CM (November 2003) Impacts of Genetically Engineered Crops on Pesticide Use in the United States: The First Eight Years, BioTech InfoNet, Technical Paper No 6.
- ²³ Independent Scientific Steering Committee (21 March 2005) Managing GM crops with herbicides: Effects on farmland wildlife (<http://www.defra.gov.uk/environment/gm/fse/results/fse-summary-05.pdf>)
- ²⁴ Koehlin, F (March 1999) "Bt Crops and Their Impacts on Insects and Food Webs" (<http://www.biotech-info.net/insects2.html>)
- ²⁵ Damage to soil bacteria, notably through horizontal transfer: Heinemann J.A, Traavik T. (2004) Problems in monitoring horizontal gene transfer in field trials of transgenic plants. Nat. Biotechnol. 22, pp 1105-1109.
- ²⁶ Daniels R., Boffey C., Mogg R., Bond J. & Clarke R. (March 2004) The Potential for dispersal of herbicide tolerance genes from genetically-modified, herbicide-tolerant oilseed rape crops to wild relatives, Final report to DEFRA, contract ref: EPG 1/5/151. (http://www.defra.gov.uk/environment/gm/research/pdf/epg_1-5-151.pdf)
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- ²⁸ "Survey reveals: insurance companies say no to GMO" (October 9, 2003) (<http://www.greenparty.org.uk/news/836>)
- ²⁹ Warwick H., Meziani, G. (September 2002) Seeds of Doubt, UK Soil Association, based on an estimate by Charles Benbrook, former executive director of the US National Academy of Sciences' Board on Agriculture.