

# **GM SCIENCE REVIEW**

## **FIRST REPORT**

**An open review of the science relevant to GM crops and food  
based on the interests and concerns of the public**

**PREPARED BY THE GM SCIENCE REVIEW PANEL (JULY 2003)**

## BIBLIOGRAPHY

- ACNFP** (1995) *Advisory Committee on Novel Foods and Processes: Annual Report 1994*. Ministry of Agriculture, Fisheries & Food/Department of Health, Crown Copyright, PB2282.
- ACNFP** (2002) *Advisory Committee on Novel Foods and Processes: Annual Report 2001*. Food Standards Agency: Crown Copyright, FSA/0553/0302, Appendix XIII, 57-66.
- Adair T.L. and Kearney C.M.** (2000) Recombination between a 3-kilobase tobacco mosaic virus transgene and a homologous viral construct in the restoration of viral and nonviral genes. *Archives of Virology* **145**: 1867-1883.
- Aebischer, N. J.** 1991. Twenty years of monitoring invertebrates and weeds in cereal fields in Sussex. In: Firbank, L. G., Carter, N., Derbyshire, J. F., & Potts, G. R. (eds) *The ecology of temperate cereal fields*, pp 305-331. Oxford: Blackwell Scientific Publications.
- Agrawal, A.A., Strauss S. Y. and Stout M. J.** (1999). Costs of induced responses and tolerance to herbivory in male and female fitness components of wild radish. *Evolution*, **53**: 1093-1104.
- Ahmed, I. & Malloch, D.** 1995. Interaction of soil microflora with the bioherbicide phosphinothricin. *Agriculture, Ecosystems and Environment*, **54**, 165-174.
- Ahreholtz, I., Harms, K., de Vries, J. & Wackernagel, W.** (2000). Increased killing of *Bacillus subtilis* on the hair roots of transgenic T4 lysozyme-producing potatoes. *Applied and Environmental Microbiology* **66** (5), 1862-1865.
- Ahreholtz, I., Harms, K., de Vries, J. & Wackernagel, W.** 2000. Increased killing of *Bacillus subtilis* on the hair roots of transgenic T4 lysozyme-producing potatoes. *Applied and Environmental Microbiology* **66** (5), 1862-1865.
- Al Mazyad, P.R. and Ammann, K.** (1999) Biogeographical assay and natural gene flow. In: K. Ammann, Y. Jacot, V. Simonsen and G. Kjellson (Eds) *Methods for risk assessment of transgenic plants III Ecological risks and prospects of transgenic plants* pp 95-98. Birkhauser Verlag, Basel.
- Alexander TW, Sharma R, Okine EK, Dixon WT, Forster RJ, Stanford K, McAllister TA** (2002) Impact of feed processing and mixed ruminal culture on the fate of recombinant EPSP synthase and endogenous canola plant DNA. *FEMS Microbiology Letters*, **214(2)**, 263-269.
- Allison R.F., Schneider W.L. and Greene A.E.** (1996) Recombination in plants expressing viral transgenes. *Semin Virol* **7**: 417-422
- Amanor-Boadu V & Amanor-Boadu Y** (2002) *A survey of post-marketing surveillance of potential human late health effects of genetically modified foods' initiatives: lessons for Canada's Strategy*. Report of a Health Canada funded project. AgriFood Innovations, Ontario. [http://www.hc-sc.gc.ca/pphb-dgspsp/publicat/gmf-agm/pdf/gmf\\_survey\\_e.pdf](http://www.hc-sc.gc.ca/pphb-dgspsp/publicat/gmf-agm/pdf/gmf_survey_e.pdf)
- Amendola A, Contini S & Ziomas I** (1992) Uncertainties in Chemical Risk Assessment: results of a European benchmark exercise, *Journal of Hazardous Materials*, **29**, 347-363.
- American Soybean Association.** 2001 Conservation Tillage Study. St. Louis, Missouri: ASA.
- Andreasen, C., Stryhn, H. & Streibig, J. C.** 1996 Decline of the flora in Danish arable fields. *Journal of Applied Ecology*, **33**, 619-626.
- Anon** (2000) Norvatis pins hopes for GM seeds on new marker system. *Nature* **2000**, **406**, p924.
- Arnaud, J-F, Viard, F., Delescluse, M. and Cuguen, J.** (2003) Evidence for gene flow via seed dispersal from crop to wild relatives in *Beta vulgaris* (chenopodiaceae): consequences for the release of genetically modified crop species with weedy lineages. *Proceedings of the Royal Society B*.
- Arrow KJ** (1971) *Essays in the Theory of Risk-Bearing*. North Holland, Amsterdam.
- Asher, J., Warren, M., Fox, R., Harding, P., Jeffcoate, G. & Jeffcoate, S.** 2001. The Millenium Atlas of Butterflies in Britain and Ireland. Oxford: Oxford University Press.
- Astwood JD, Leach LN, Fuchs RL** (1996) Stability of food allergens to digestion *in vitro*. *Nature Biotechnology*, **14**, 1269-1273.
- Bailey M. J., Timms-Wilson T.M., Lilley A.K. and Godfray H.C.J** (2001). The Risks and Consequences of Gene Transfer from Genetically-Manipulated micro-organisms in the

- Environment (Review). Research Report No. 17. August 2001. Department for Environment, Food and Rural Affairs
- Baillie, S. R., Crick, H. Q. P., Balmer, D. E., Bashford, R. I., Beaven, L. P., Freeman, S. N., Marchant, J. H., Noble, D. G., Aven, M. J., Siriwardena, G. M., Thewlis, R. & Wernham, C. V.** 2001 Breeding birds in the wider countryside; their conservation status. Thetford: British Trust for Ornithology. <http://www.bto.org/birdtrends/>
- Baker, H. G.** 1965. Characteristics and modes of origins of weeds. The Genetics of Colonizing Species. H. G. Baker and H. G. Stebbins. London, Academic Press.
- Baldwin, F. L.** 1999. The value and exploitation of herbicide-tolerant crops in the US. Proceedings of the BCPC conference, Weeds 1999, 653-660. British Crop Protection Council.
- Bannon GA, Cockrell G, Connaughton C, West CM, Helm R, Stanley JS, King N, Rabjohn P, Sampson HA & Burks AW** (2001) Engineering, characterization and in vitro efficacy of the major peanut allergens for use in immunotherapy. *Int Arch. Allergy Immunol.* **124(1-3)**, 70-72.
- Barker H., McGeachy K. D., Ryabov E. V., Commandeur U., Mayo M. A. and Barr, C. J., Bunce, R. G. H., Clarke, R. T., Fuller, R. M., Furse, M. T., Gillespie, M. K., Groom, G. B., Hallam, C. J., Hornung, M., Howard, D. C. & Ness, M. J.** 1993. *Countryside Survey 1990 - Main Report*. London: Department of the Environment.
- Barrett C., Cobb E., Mc.Nicol R. and Lyon G. A.** (1997). Risk assessment study of plant genetic transformation using Agrobacterium and implications for analysis of transgenic plants. *Plant Cell Tissue and Organ Culture.* **47(2)**: 35-144.
- Barrett, S.C.H.** (1983) Crop mimicry in weeds. *Economic Botany*, **37**, 255-282.
- Bartsch D, Lehnen M, Clegg, J, Pohl-Orf M, Schuphan I, Ellstrand NC** (1999) Impact of gene flow from cultivated beet on genetic diversity of wild beet populations. *Mol Ecol* **8**: 1733-1741
- Basore, N. S., Best, L. B. & Wooley, J. B.** 1986. Bird nesting in Iowa no-tillage and tilled cropland. *Journal of Wildlife Management*, **50**, 19-28.
- Baur B, Hanselmann K, Scimme W & Jenne B** (1996) Genetic transformation in freshwater: *Escherichia coli* is able to develop natural competence. *Applied and Environmental Microbiology*, **62**, 3673-3678.
- Bavage AD, Buck E, Dale PJ, Moyes C & Senior I** (2002) Analysis of a backcross population from a multi-copy transgenic *Brassica napus* line. *Euphytica*, **124**, 333-340.
- Beckie, H.J., Hall, L.M. and Warwick, S.I.** (2001) Impact of herbicide-resistant crops as weeds in Canada. Proceedings Brighton Crop Protection Council - Weeds pp 135-142.
- Beckie, H.J., Warwick, S.I., Nair, H. and Séquin-Swartz G.** (2002). Gene flow in commercial fields of herbicide-resistant canola (*Brassica napus*) *Ecol. Appl.* (in press).
- Beever DE & Kemp CF** (2000) Safety issues associated with the DNA in animal feed derived from genetically modified crops. A review of scientific and regulatory procedures. *Nutr. Abstr. Rev. Series B: Livestock Feeds and Feeding*, **70(3)**, 175-182.
- Benbrook, C.** 2001. Do GM crops mean less pesticide use? Pesticide Outlook, October, 204-207.
- Bendahmane M., Szecsi J., Chen I., Berg R.H. and Beachy R.N.** (2002) Characterization of mutant tobacco mosaic virus coat protein that interferes with virus cell-to-cell movement. *Proceed. Natl. Acad. of Sci. U S A.* **99**: 3645-3650.
- Bergelsen, J.** (1994) Changes in fecundity do not predict invasiveness: a model study of transgenic plants. *Ecology* **75**: 249-252.
- Bergelsen, J., Purrington, C.B., Palm, C.J. Lopez-Gutierrez, J-C** (1996) Costs of resistance: a test using transgenic *Arabidopsis thaliana*. *Proceedings of the Royal Society.B.* **263**: 1659-1663.
- Bertolla F. and Simonet P.** (1999) Horizontal gene transfers in the environment: natural transformation as a putative process for gene transfers between transgenic plants and microorganisms. *Res. Microbiol.* **150**: 75-384.
- Bhalla PL, Swoboda I & Singh MB** (2001) Reduction in allergenicity of grass pollen by genetic engineering. *Int. Arch. Allergy Immunol.* **124(1-3)**, 51-54.
- Bhalla PL, Swoboda I, Singh MB.** 1999. Antisense-mediated silencing of a gene encoding a major ryegrass pollen allergen. *Proc Natl. Acad. Sci. USA* **96(20)**:11676-11680.
- Bilsborrow P.E., Evans E.J., Bowman J. and Bland B.F.** (1998). Contamination of edible double-low oilseed rape crops via pollen transfer from high erucic cultivars. *J. Sci. Food Agric.* **76**: 17-22.

- Bindslev-Jensen C, Briggs D & Osterballe M** (2002) Can we determine a threshold level for allergenic foods by statistical analysis of published data in the literature? *Allergy*, **57**(8), 741-746.
- Birch, N.E., Goeghegan, I.E., Majerus, M.E.N., McNichol, J.W., Hackett, C.A., Gatehouse, A.M.R. & Gatehouse, J.A.** (1999) Tri-trophic interactions involving pest aphids, predatory 2-spot ladybirds and transgenic potatoes expressing snowdrop lectin for aphid resistance. *Molecular Breeding*, **5**, 75-83.
- Birch, N.E., Goeghegan, I.E., Majerus, M.E.N., McNichol, J.W., Hackett, C.A., Gatehouse, A.M.R. & Gatehouse, J.A.** 1999. Tri-trophic interactions involving pest aphids, predatory 2-spot ladybirds and transgenic potatoes expressing snowdrop lectin for aphid resistance. *Molecular Breeding*, **5**, 75-83.
- Bock A-K., Lheureux K., Libeau-Dulos M., Nilsagård H. and Rodriguez-Cerezo E.** (2002). Scenarios for co-existence of genetically modified, conventional and organic crops in European agriculture. Joint Research Centre, European Commission.
- Bohan, D. A., Bohan, A. C., Glen, D. M., Symondson, W. O. C., Wiltshire, C. W. & Hughes, L.** 2000. Spatial dynamics of predation by carabid beetles on slugs. *Journal of Animal Ecology*, **69**, 367-379.
- Borja M., Rubio T., Scholthof H.B. and Jackson A.O.** (1999) Restoration of wild-type virus by double recombination of tombusvirus mutants with a host transgene. *Molecular Plant-Microbe Interactions* **12**: 153 - 162.
- Bouhida M, Lockhart BE & Olszewski NE** (1993) An analysis of the complete sequence of a sugarcane bacilliform virus genome infectious to banana and rice. *J. General Virology*, **74**, 15-22.
- Brake J & Vlachos P** (1998) Evaluation of transgenic Event 176 'Bt' corn in broiler chickens. *Poultry Sci.* **77**, 648-653.
- Brandle JE, McHugh SG, James L, Labbe H & Miki BL** (1995) Instability of transgene expression in field grown tobacco carrying the *csr1-1* gene for sulfonylurea herbicide resistance. *Biotechnology*, **13**, 994-998.
- Breeze, V. G., Marshall, E. J. P., Hart, A., Vickery, J. A., Crocker, J., Walters, K., Packer, J., Kendall, D., Fowbert, J. & Hodgkinson, D.** 1999. *Assessing pesticide risks to non-target terrestrial plants. Pesticides Safety Directorate, Commission No. PN0923. London: DEFRA.*
- Bridges, D. C.** 1999. Implications of pest-resistant / herbicide-tolerant plants for IPM. In: Kennedy, G. G. & Sutton, T. B. (eds) *Emerging technologies for integrated pest management: concepts, research and implementation.* St Paul, Minnesota: APS Press.
- Bromilow R.H., Evans A.A., Nicholls P.H., Todd A.D. and Briggs G.G.** (1966) The effect on soil fertility of repeated applications of pesticides over 20 years. *Pesticide Science* **48**: 63-72
- Brown J.R.** (2003). Ancient horizontal gene transfer. *Nature Reviews Genetics* **4**(2): 121-132.
- Brown, J. K. M. & Hovmøller, M. S.** 2002. Aerial dispersal of fungi on the global and continental scales and its consequences for plant disease. *Science* **297**: 537-541.
- Brutnell TP** (2002) Transposon tagging in maize. *Functional Integrative Genomics*, **2**, 2-12.
- Buckelew, L. D., Pedigo, L. P., Mero, H. M., Owen, M. D. K. & Tylka, G. L.** 2000. Effects of weed management systems on canopy insects in herbicide-resistant soybeans. *Journal of Economic Entomology*, **93**, 1437-1443.
- Bullock, J.M.** (1999) Using population matrix models to target GMO risk assessment. *Aspects of Applied Biology*, **53**: 205-212.
- Cai W-Q., Fang R-X., Hong-Sheng S., Wang X., Zhang F.-L., Li Y.-R., Zhang, Jiu-Chun Cheng, Xiao-Ying, Wang, Gui-ling Mang, Ke-Qiang** (2003). Development of CMV- and TMV-resistant transgenic chilli pepper: field performance and biosafety assessment. *Molecular Breeding* **11**: 25-35.
- Calgene Inc.** (1990) Request for an Advisory Opinion - *KanR* gene. Safety and use in the production of genetically engineered plants. FDA, Rockville. FDA Docket Number 90A-0416.
- Cameron J, & O'Riordan T** (1994) *Interpreting the Precautionary Principle.* Earthscan, London
- Campbell, B.C. & Duffy, S.S.** (1979) Tomatine and parasitic wasps: potential incompatibility of plant antibiosis with biological control. *Science* **205**, 700-702.
- Campbell, B.C. & Duffy, S.S.** 1979. Tomatine and parasitic wasps: potential incompatibility of plant antibiosis with biological control. *Science* **205**, 700-702.

- Campbell, L., Avery, M. I., Donald, P. F., Evans, A. D., Green, R. E. & Wilson, J. D.** 1997. A review of the indirect effects of pesticides on birds. Peterborough: Joint Nature Conservation Committee.
- Campbell, L.H., Avery, M.L., Donald, P., Evans, A.D., Green, R.E. & Wilson, J.D.** 1997. *Review of the Indirect Effects of Pesticides on Birds*. Report No 227. Peterborough: Joint Nature Conservation Committee
- Cannell, R. Q., Davies, D. B. Mackney, D. & Pidgeon, J. D.** 1978. *The suitability of soils for sequential direct drilling of combine-harvested crops in Britain: a provisional classification*. Outlook Agriculture, **9**, 306-316.
- Capy P, Anxolabehere D & Langin T** (1994) The strange phylogenies of transposable elements: are transfers the only explanation? *Trends in Genetics*, **10**, 7–12.
- Carpenter, J. E. & Gianessi, L. P.** 2002. Trends in pesticide use since the introduction of genetically engineered crops. In: Kalaitzandonakes, N. (ed) *Economic and Environmental Impacts of Agbiotechnology: A Global Perspective*. New York: Kluwer-Plenum.
- Carpenter, J., Felsot, A, Goode, T., Hammig, M., Onstad, D. & Sankula, S.** 2002. *Comparative environmental impacts of biotechnology-derived and traditional soybean, corn and cotton crops*. Ames, Iowa: Council for Agricultural Science and Technology.
- Carrière Y, Eilers-Kirk C, Sisterson M, Antilla L, Whitlow M, Dennehy TJ, Tabashnik BE.** 2003. Long-term regional suppression of pink bollworm by *Bacillus thuringiensis* cotton. Proc. Natl. Acad. Sci. 100 (4):1519-1523.
- CDFA** (2003) *A food foresight analysis of agricultural biotechnology*. Report for the California Department of Food and Agriculture, Food Biotechnology Task Force. 1 January 2003, p3. [http://www.cdffa.ca.gov/exec/scienceadvisor/pdfs/ag\\_biotech\\_report\\_03.pdf](http://www.cdffa.ca.gov/exec/scienceadvisor/pdfs/ag_biotech_report_03.pdf)
- CEC** (2003) EU Commission Guidance Document: The Risk Assessment of Genetically Modified Plants and Derived Food and Feed (6-7 March 2003). Prepared for the EU Scientific Steering Committee by the Joint Working Group on Novel Foods and GMOs.
- Ceccherini M. T., Pote J., Kay E., Van T. V., Marechal J., Pietramellara G., Nannipieri P., Vogel T. M. and Simonet P.** (2003). Degradation and Transformability of DNA from Transgenic Leaves. *Appl. Environ. Microbiol.* **69**: 673-678.
- Chamberlain D. and Stewart C.N.** (1999). Transgene escape and transplastomics. *Nat Biotechnol.* **17**(4): 330-331.
- Chamberlain, D. E., Fuller, R. J., Bunce, R. G. H., Duckworth, J. C. & Shrubbs, M.** 2000. Changes in the abundance of farmland birds in relation to the timing of agricultural intensification in England and Wales. *Journal of Applied Ecology*, **37**, 771-788.
- Chamberlain, D., Freeman, S., Siriwardena, G. & Vickery, J.A.** 2002. The effect of GM crops on summer birds and mammal occurrence – a power analysis. British Trust for Ornithology Research Report 260.
- Chambers PA, Duggan PS, Heritage J & Forbes JM** (2002) The fate of antibiotic resistance marker genes in transgenic plant feed material fed to chickens. *J. Antimicrobial Chemotherapy*, **49**, 161-164.
- Chamier B., Lorenz M.G. and Wackernagel W.** (1993). Natural transformation of *Acinetobacter-Calcoaceticus* by plasmid DNA adsorbed on sand and groundwater aquifer material. *Applied And Environmental Microbiology* **59**(5): 1662-1667.
- Champolivier J., Gasquez J., Messian A. and Richard-Molard M.** (1999). Management of transgenic crops within the cropping system. In British Crop Protection Council Symposium Proceedings no 72. *Gene flow and Agriculture - Relevance for Transgenic Crops* 233 – 240.
- Chancellor, R. J.** 1985. Changes in the weed flora of an arable field cultivated for 20 years. *Journal of Applied Ecology*, **22**, 491-502.
- Chassy BM** (2002) Food safety evaluation of crops produced through biotechnology. *J. American College of Nutrition*, **21**, No. 3, 166S-173S.
- Chen I & Dubnau D** (2003) DNA transport during transformation. *Frontiers in Bioscience*, **8**, s544-556.
- Chicas A. and Macino G.** (2001) Characteristics of post-transcriptional gene silencing. *EMBO Report* **2** (11): 992-996.

- Chiter A, Forbes JM & Blair GE** (2000) DNA stability in plant tissues: implications for the possible transfer of genes from genetically modified foods. *FEBS Lett.* **481**, 164-168.
- CLA** (2000) *Plant biotechnology regulation. science-based and consumer accessible from plow to plate*. CropLife America. <http://www.croplifeamerica.org>
- Clark JH & Ipharraguerre IR** (2000) Livestock performance: feeding biotech crops. *J. Dairy Sci.* **84**, (E suppl.) E9-18.
- Cockburn A & Phipps RH** (2003) *GM technology: a tool to benefit livestock production in less developed and developed countries*. Proceedings of the British Society for Animal Science 2003. ISBN 0906562 41 4. <http://www.bsas.org.uk/meetings/annlproc/Pdf2003/210.pdf>
- Cockburn A** (2002) Assuring the safety of genetically modified (GM) foods: the importance of an holistic, integrative approach. *Journal of Biotechnology*, **98**, 79-106.
- Codex** (2002a) Codex Ad Hoc Intergovernmental Task Force on Foods Derived from Biotechnology. *Draft principles for the risk analysis of foods derived from modern biotechnology (at Step 8 of the elaboration procedure)*. ALINORM 03/34, Appendix II. Codex Alimentarius Commission, Joint FAO/WHO Food Standards Programme, Food & Agriculture Organisation, Rome, 2003. [ftp://ftp.fao.org/codex/alinorm03/AI03\\_34e.pdf](ftp://ftp.fao.org/codex/alinorm03/AI03_34e.pdf)
- Codex** (2002b) Codex Ad Hoc Intergovernmental Task Force on Foods Derived from Biotechnology. *Draft Guideline for the Conduct of Food Safety Assessment of Foods Derived from Recombinant-DNA Plants (at Step 8 of the elaboration procedure)*. ALINORM 03/34, Appendix III. Codex Alimentarius Commission, Joint FAO/WHO Food Standards Programme, Food & Agriculture Organisation, Rome, 2003. [ftp://ftp.fao.org/codex/alinorm03/AI03\\_34e.pdf](ftp://ftp.fao.org/codex/alinorm03/AI03_34e.pdf)
- Coghlan A** (1999) How safe is safe? Seemingly innocuous vegetables can contain a toxic surprise. *New Scientist* **164**, Issue 2208, 7.
- Conservation Technology Information Center** 2000. Top ten benefits. West Lafayette, Indiana: CTIC.
- Conway G R and Pretty J N.** 1991. *Unwelcome Harvest: Agriculture and Pollution*. Earthscan, London. 645 pp
- Cooke, A. S. & Burn, A. J.** 1995. The environmental impact of herbicides used in intensive farming systems. Proceedings of the BCPC conference, Weeds 1995, 603-612. British Crop Protection Council.
- Countryside Agency.** 2002. *The Potential Effects of GM Crops on the Countryside*. Research Notes CRN 38 (August 2002). London
- Cousens, R. & Mortimer, M.** 1995. *Dynamics of weed populations*. Cambridge: Cambridge University Press.
- Couty, A., de la Vina, G., Clark, S.J., Kaiser, L., Pham-Delègue, M.-H. & Poppy, G.M.** (2001) Direct and sublethal effects of *Galanthus nivalis* agglutinin (GNA) on the development of a potato-aphid parasitoid, *Aphelinus abdominalis* (Hymenoptera: Aphelinidae). *Journal of Insect Physiology* **47** (6), 553-561.
- Couty, A., de la Vina, G., Clark, S.J., Kaiser, L., Pham-Delègue, M.-H. & Poppy, G.M.** 2001. Direct and sublethal effects of *Galanthus nivalis* agglutinin (GNA) on the development of a potato-aphid parasitoid, *Aphelinus abdominalis* (Hymenoptera: Aphelinidae). *Journal of Insect Physiology* **47** (6), 553-561.
- Cowgill, S.E., Bardgett, R.D., Kiezebrink, D.T & Atkinson, H.J.** (2002). The effect of transgenic nematode resistance on non-target organisms in the potato rhizosphere. *Journal of Applied Ecology* **39**, 915-923.
- Cowgill, S.E., Bardgett, R.D., Kiezebrink, D.T & Atkinson, H.J.** 2002. The effect of transgenic nematode resistance on non-target organisms in the potato rhizosphere. *Journal of Applied Ecology* **39**, 915-923.
- Coyette, B., Tencalla, F., Brants, I & Fichet, Y.** 2002. Effects of introducing glyphosate-tolerant sugar beet on pesticide usage in Europe. *Pesticide Outlook*, 219-223.
- Crawford J.W., squire G. and Burn D.** (1999). Modelling the spread of herbicide-resistance in oilseed rape. Environmental Impact of Genetically Modified Crops, DETR Research Report No. 10: 97-100.

- Crawley, M. J. and S. L. Brown.** 1995. "Seed limitation and the dynamics of feral oilseed rape on the M25 motorway." *Proceedings of the Royal Society of London Series B-Biological Sciences* **259(1354)**: 49-54.
- Crawley, M. J., P. H. Harvey, and A. Purvis.** 1996. "Comparative ecology of the native and alien floras of the British Isles." *Philosophical Transactions of the Royal Society of London Series B-Biological Sciences* **351(1345)**: 1251-1259.
- Crawley, M. J., R. S. Hails, M. Rees, D. Kohn, and J. Buxton.** 1993. "Ecology of transgenic oilseed rape in natural habitats." *Nature* **363(6430)**: 620-623.
- Crawley, M.J.** 1987. What makes a community invasible?" In A.J. Gray, M.J. Crawley, and P.J. Edwards (eds) *Colonization, Succession and Stability*. Pp 429-453. *Blackwell Scientific Publications, Oxford*.
- Crawley, M.J.** 1991. The ecology of genetically engineered organisms: Assessing the environmental risks. In H.A. Mooney & G. Bernardi (eds) *Introduction of Genetically Modified Organisms into the Environment*. (1990). pp 133-150. John Wiley, New York.
- Crawley, M.J., Brown, S.L., Hails, R.S., Kohn, D.D. & Rees, M.** 2001. Transgenic crops in natural habitats. *Nature* **409**, 682-683.
- Crecchio, C. & Stotzky, G.** (2001). Biodegradation and insecticidal activity of the toxin from *Bacillus thuringiensis* subsp. *kurstaki* bound on complexes of montmorillonite-humic acids-Al hydroxypolymers. *Soil Biology and Biochemistry* **33**, 573-581.
- Crecchio, C. & Stotzky, G.** 2001. Biodegradation and insecticidal activity of the toxin from *Bacillus thuringiensis* subsp. *kurstaki* bound on complexes of montmorillonite-humic acids-Al hydroxypolymers. *Soil Biology and Biochemistry* **33**, 573-581.
- Cuguen, J** (2003) in press. Gene flow within the Beta species complex: genetic diversity of weed and wild sea-beets in northern France. In 'Introgression from Genetically modified plants into wild relatives and its consequences' Proceedings of an ESF Conference 21-24 January 2003, Amsterdam.
- Culpepper, A. S., York, A. C., Batts, R. B., & Jennings, K. M.** 2000. Weed management in glufosinate- and glyphosate-resistant soybean (*Glycine max*). *Weed Technology*, **14**, 77-88.
- Dale EC & Ow DW** (1991) Gene transfer with subsequent removal of the selection gene from the host genome. *Proceedings of the National Academy of Science USA*,. **88**, 10558-10562.
- Dale P & Irwin J** (1998) *Environmental Impact of Transgenic Plants*. Chapter 17 in K.Lindsay (Ed) *Transgenic Plant Science*, Harwood Academic Publishers.
- Daniell H. and Varma S.** (1998). Chloroplast-transgenic plants: panacea--no! Gene containment—yes. *Nat Biotechnol.* **16(7)**: 602.
- Daniell H., Datta R., Varma S., Gray S. and Lee S.B.** (1998). Containment of herbicide resistance through genetic engineering of the chloroplast genome. *Nat Biotechnol.* **16(4)**: 345-8.
- Daniels, R.E. and Sheail, J.** (1999) Genetic pollution: concepts, concerns and transgenic crops. *BCPC Symposium Proceedings No. 72*, 65-72. British Crop Protection Council, Farnham.
- Davison J.** (1999) Review. Genetic exchange between bacteria in the environment. *Plasmid* **42(2)**: 73-91
- De Vries J & Wackernagel W** (1998) Detection of nptII kanamycin resistance genes in genomes of transgenic plants by marker rescue transformation. *Molecular and General Genetics*, **257**, 606-613.
- De Vries J., Meier P., and Wackernagel W.** (2001). The natural transformation of the soil bacteria *Pseudomonas stutzeri* and *Acinetobacter* sp by transgenic plant DNA strictly depends on homologous sequences in the recipient cells. *FEMS Microbiol Lett* **195 (2)**: 211-215.
- De Wet H.M.J. and Harlan, J.R.** (1975) Weeds and domesticates: evolution in the man-made habitat. *Economic Botany* **29**: 99-107.
- De Zoeten G.A.** (1991) Risk assessment: Do we let history repeat itself? *Phytopathology* **81**: 585-586.
- Defra.** 2003. *Digest of Environmental Statistics*. London
- Delgado CL, Rosegrant MW, Steinfeld H, Ehui S, & Corbois C** (1999) *The growing place of livestock products in world food in the twenty-first century*. IFPRI MSSD, Discussion Paper No. 28.
- Demanèche S., Bertolla F., Buret F., Nalin R., Sailland A., Auriol P., Vogel T.M. and Simonet P.** (2001b). Laboratory-scale Evidence for Lightning-Mediated Gene Transfer in Soil. *Appl. Environ. Microbiol.* **67**: 3440-3444.

- Demaneche S., Jocteur-Monrozier L., Quiquampoix H., Simonet P.** 2001a. Evaluation of biological and physical protection against nuclease degradation of clay-bound plasmid DNA. *Applied and Environmental Microbiology*. **67**: 293-299.
- Department for the Environment, Transport and the Regions, UK** (1999) Safety of Plant Viral Inserts. *Research Report* 11.
- Derksen, D. A., Harker, K. N. & Blackshaw, R. E.** 1999. *Herbicide tolerant crops and weed population dynamics in western Canada*. Proceedings of BCPC Conference, Weeds 1999, 417-424. British Crop Protection Council
- Desplanque, B., Hautekeete, N. and Van Dijk, H.** (2002) Transgenic weed beets: possible, probable, avoidable. *Journal of Applied Ecology* **39**: 561-571.
- Devine, M. D. & Buth, J. L.** 2001. Advantages of genetically modified canola: a Canadian perspective. Proceedings of BCPC Conference, Weeds 2001, 367-372. British Crop Protection Council
- DeVries, F.T, van der Meijden, R and Brandenburg, W.A.** (1992) Botanical files. A study of real chances for spontaneous gene flow from cultivated plants to the wild flora of the Netherlands. *Gorteria* supplement, Rijksherbarium Leiden.
- Dewar, A. M., Haylock, L. A., Bean, K. M., May, M. J.** 2000. Delayed control of weeds in glyphosate-tolerant sugar beet and the consequences on aphid infestation and yield. *Pest Management Science*, **56**, 345-350.
- Dewar, A. M., May, M. J., Woiwod, I. P., Haycock, L. A., Champion, G. T., Garner, B. H., Sands, R. J., Qi, A. & Pidgeon, J. D.** 2003. A novel approach to the use of genetically modified herbicide tolerant crops for environmental benefit. Proceedings of the Royal Society of London, B, **270**, 335-340.
- Dewar, A.M., Haylock, L.A., Bean, K.M. & May, A.J.** 2000. Delayed control of weeds in glyphosate-tolerant sugar beet and the consequences on aphid infestation and yield. *Pest Management Science* **56** (4): 345-350
- Dhankar OP, Li Y, Rosen BP, Shi J, Salt D, Senecoff JF, Sashti NA, Meagher RP.** 2002. Engineering tolerance and hyperaccumulation of arsenic in plants by combining arsenate reductase and gamma-glutamylcysteine synthetase expression. *Nature Biotechnol.* **20** (11) : 1140-1145.
- DoE** (1995) *A Guide to Risk Assessment and Risk Management for Environmental Protection*. UK Department of the Environment, HMSO, London.
- Doerfler W** (2000) *Foreign DNA in mammalian systems*. Wiley-VCH, Weinheim.
- Dominguez A, Hermoso de Mendoza A., Guerri, J., Cambra M., Navarro L., Moreno P. and Pena L.** (2002) Pathogen-derived resistance to Citrus tristeza virus (CTV) in transgenic Mexican lime (*Citrus aurantifolia* (Christ.) Swing.) plants expressing its p25 coat protein gene. *Molecular Breeding* **10**: 1-10.
- Donald, P. F., Green, R. E. & Heath, M. F.** 2001. *Agricultural intensification and the collapse of Europe's farmland bird populations*. Proceedings of the Royal Society of London, B, **268**, 25-29.
- Donegan KK, Seidler RJ.** 1999. Effects of transgenic plants on soil and plant microorganisms. *Recent Research Developments in Microbiology* **3**:415-424.
- Donegan, K.K., Seidler, R.J., Doyle, J.D., Porteus, L.A., Digiovanni, G., Widmer, F. & Watrud, L.S.** (1999). A field study with genetically engineered alfalfa inoculated with recombinant *Sinorhizobium melioli*: effects on the soil ecosystem. *Journal of Applied Ecology*, **36**, 920-936.
- Donegan, K.K., Seidler, R.J., Doyle, J.D., Porteus, L.A., Digiovanni, G., Widmer, F. & Watrud, L.S.** 1999. A field study with genetically engineered alfalfa inoculated with recombinant *Sinorhizobium melioli*: effects on the soil ecosystem. *Journal of Applied Ecology*, **36**, 920-936.
- Doreste V. Ramos P. L., Enriquez G. A., Rodriguez R., Peral R. and Pujol M.** (2002) Transgenic potato plants expressing the potato virus X (PVX) coat protein gene developed resistance to the viral infection. *Phytoparasitica* **30**: 177-185.
- Down RE, Ford L, Bedford SJ, Gatehouse LN, Newell C, Gatehouse JA & Gatehouse AM** (2001) Influence of plant development on transgene expression in potato and consequences for insect resistance. *Transgenic Research*, **10**, 223-236.
- Down, R.E., Ford, L., Woodhouse, S.D., Raemaekers, R.J.M., Leitch, B., Gatehouse, J.A. & Gatehouse, A.M.R.** (2000) Snowdrop lectin (GNA) has no acute toxic effects on a beneficial



- insect predator, the 2-spot ladybird (*Adalia bipunctata* L.). *Journal of Insect Physiology* **46**, 379-391.
- Down, R.E., Ford, L., Woodhouse, S.D., Raemaekers, R.J.M., Leitch, B., Gatehouse, J.A. & Gatehouse, A.M.R.** 2000. Snowdrop lectin (GNA) has no acute toxic effects on a beneficial insect predator, the 2-spot ladybird (*Adalia bipunctata* L.). *Journal of Insect Physiology* **46**, 379-391.
- Downey, R.K.** (1999) Gene flow and rape - the Canadian experience. BCPC Symposium Proceedings No. 72: Gene flow and agriculture: relevance for transgenic crops. British Crop Protection Council: Farnham. pp.105-116.
- Drake, J. A., H. A. Mooney, F. di Castri, R. H. Groves, F. J. Kruger, M. Rejmanek, and M. Williamson.** 1989. Biological Invasions: A Global Perspective. Chichester, John Wiley.
- Dröge M., Puhler A., Selbitschka W.** (1999). Horizontal gene transfer among bacteria in terrestrial and aquatic habitats as assessed by microcosm and field studies. *Review. Biology and Fertility of Soils* **29**: 221-245
- Duggan PS, Chambers PA, Heritage J & Forbes JM** (2000) Survival of free DNA encoding antibiotic resistance from transgenic maize and the transformation activity of DNA in ovine saliva, ovine rumen fluid and silage effluent. *FEMS Microbiology Letters*, **191**, 71-77.
- Duggan PS, Chambers PA, Heritage J & Forbes JM** (2003) Fate of genetically modified maize DNA in the oral cavity and rumen of sheep. *British J Nutrition*, **89**, 159-166.
- Duke, S. O.** 1999. Weed management: implications of herbicide resistant crops. In: Traynor, P. L. & Westwood, J. H. (eds) Ecological effects of pest resistance genes in managed ecosystems; proceedings of a workshop, 21-25.
- Dunfield, K. E. & Germida, J. J.** (2001) Diversity of bacterial communities in the rhizosphere and root interior of field-grown genetically modified Brassica napus. *FEMS Microbiology Ecology* **38** p1-9
- Dunwell JH.** 2002. Future prospects for transgenic crops. *Phytochem. Reviews* 1:1-12.
- DuPont Agricultural Products** (1996) Safety assessment of high oleic acid transgenic soybeans. Notification Dossier 62 FR 9155-9156, Docket No. 96-098-1.
- Eastham and Sweet** (2002). Genetically modified organisms (GMOs): The significance of gene flow through pollen transfer. European Environment Agency (EEA) Environmental issue report No 28 Mar02.
- Ebbehoj KF & Thomsen PD** (1991) Species differentiation of heat treated meat products by DNA hybridisation. *Meat Science*, **30**, 221-234.
- EC** (1987) *The harmonisation of laws, regulations and administrative provisions relating to the application of the principles of good laboratory practice and the verification of their applications for tests on chemical substances.* Council Directive 87/18/EEC of 18 December 1986, OJ. L15, 29-30. Commission of the European Communities, Brussels.
- EC** (2000) *Communication from the Commission on the precautionary principle.* COM(2000) 1, 2 February 2000. Commission of the European Communities, Brussels.  
[http://europa.eu.int/comm/dgs/health\\_consumer/library/pub/pub07\\_en.pdf](http://europa.eu.int/comm/dgs/health_consumer/library/pub/pub07_en.pdf)
- EC** (2003) *The risk assessment of genetically modified plants and derived food and feed.* Prepared for the EU Scientific Steering Committee by the Joint Working Group on Novel Foods and GMOs. EC Guidance Document, 6-7 March 2003. Commission of the European Communities, Brussels.
- EC Official Journal** (1997) *EU novel foods.* Official Journal of the European Communities (27 January 1997). Regulation (EC) No 258/97 of the European Parliament and of the Council. No. L43-1, p7.
- Edwards P.J., Fletcher M.R. and Berny P.** (2000). Review of the factors affecting the decline of the European brown hare, *Lepus europaeus* (Pallas, 1778) and the use of wildlife incident data to evaluate the significance of paraquat. *Agriculture, Ecosystems & Environment* **79 (2-3)**: 95-103
- Edwards, C. A. & Bohlen, P. J.** 1996. *Biology and Ecology of Earthworms.* London: Chapman & Hall.
- EEA** (2001) *Chemicals in the European Environment: Low Doses, High Stakes?* European Environment Agency, United Nations Environment Programme, EEA, Copenhagen.  
<http://reports.eea.eu.int/NYM2/en>
- Einspanier R, Klotz A, Kraft J, Aulrich K, Poser R, Schwagele F, Jahreis G & Flachowsky G** (2001) The fate of forage plant DNA in farm animals: a collaborative case study investigating

- cattle and chicken fed recombinant plant material. *European Food Research and Technology*, **212**, 129-134.
- Ellstrand, N.C, Prentice, H.C. and Hancock, J.F.** (1999) Gene flow and introgression from domesticated plants into their wild relatives. *Annual Review of Ecology and Systematics* **30**: 539-563.
- Elmore RW, Roeth, F W, Nelson L A, Shapiro C A, Klein R N, Knezevic S V and Martin A.** 2001. Glyphosate-resistant soybean cultivar yields relative to sister lines. *Agronomy Journal* **93**, 408-412
- Elton, C. S.** 1958. *The Ecology of Invasions by Animals and Plants*. New York, John Wiley.
- English Nature** submission dated April 2001 (MAFF consultation on adventitious presence of GM seeds in seed of conventional varieties) and August 2002 (DEFRA consultation on Commission proposals on thresholds for the adventitious presence of approved GMOs in seeds).
- ENTRANSFOOD** (2003) EU Network on Safety Assessment of GM Crops (ENTRANSFOOD). *Food & Chemical Toxicology*. In press.
- Environment Agency.** 2002. *Agriculture and Natural Resources: Benefits, Costs and Potential Solutions*. Peterborough
- EPA** (1997) *Framework for Environmental Health Risk Management*. GS Omenn, AC Kessler, NT Anderson, PY Chiu, J Doull, B Goldstein, J Lederberg, S McGuire, D Rall & VV Weldon. US Presidential/Congressional Commission on Risk Assessment and Risk Management, final report Volume 1, EPA, Washington.
- ERS-USDA.** 1999. *Impacts of adopting genetically-engineered crops in the US*. Washington DC: Economic Research Service, USDA
- ESTO** (1999) *On 'Science' and 'Precaution' in the Management of Technological Risk*. European Science and Technology Observatory (A. Stirling, Ed), report to the EU Forward Studies Unit, IPTS, Sevilla, EUR19056 EN. [http://esto.jrc.es/detailshort.cfm?ID\\_report=289](http://esto.jrc.es/detailshort.cfm?ID_report=289)
- Evans, H.F.** (2002). *Environmental impact of Bt exudates from roots of genetically modified plants*. Defra
- Evans, H.F.** 2002. *Environmental impact of Bt exudates from roots of genetically modified plants*. Defra Report no. ??
- Ewald, J. A. & Aebischer, N. J.** 1999. *Pesticide use, avian food resources and bird densities in Sussex*. Peterborough: Joint Nature Conservation Committee.
- Falk B.W. and Bruening G.** (1994) Will transgenic crops generate new viruses and new diseases? *Science* **263**: 1395-1396.
- FAO/WHO** (1991) *Strategies for assessing the safety of foods produced by biotechnology*. Report of a joint FAO/WHO consultation. World Health Organization, Geneva.
- FAO/WHO** (1996) *Biotechnology and food safety*. Report of a joint FAO/WHO consultation. FAO Food and Nutrition Paper 61. Food and Agriculture Organisation of the United Nations, Rome.
- FAO/WHO** (2000) *Safety aspects of genetically modified foods of plant origin*. Report of a joint FAO/WHO expert consultation on foods derived from biotechnology. World Health Organization, Geneva.
- FAO/WHO** (2001) *Evaluation of allergenicity of genetically modified foods*. Report of a joint FAO/WHO expert consultation on allergenicity of foods derived from biotechnology, 22-25 January 2001. Food & Agriculture Organisation of the UN, Rome. <ftp://ftp.fao.org/es/esn/food/allergygm.pdf>
- Faust MA.** (2000) Livestock products: composition and detection of transgenic DNA/proteins. In: selected proceedings from the 'Agricultural Biotechnology in the Global Marketplace' symposium. *Am. Society of Anim. Sci.* Savoy, IL.
- Fawcett, R. & Towery, D.** 2002. *Conservation tillage and plant biotechnology*. West Lafayette, Indiana: Conservation Technology Information Center.
- Fawcett, R. S.** 1994. Can agriculture cool global warming? *Farm Journal*, 118(6), 12.
- FDA (1992)** Statement of policy: Foods derived from new plant varieties. Food and Drug Administration. Federal Register 57, 22984-23002.
- feral oilseed rape on the M25 motorway. Proceedings of the Royal Society of

- Fernandez-Cornejo, J. & McBride, W. D.** 2000. Genetically engineered crops for pest management in US agriculture: farm-level effects. Agricultural Economics Report No. 786. Economics Research Service, US Department of Agriculture.
- Fernandez-Cornejo, J. & McBride, W. D.** 2002. *Adoption of bio-engineered crops*. Washington: US Department of Agriculture.
- Ferreira SA, Pitz KY, Manshardt R, Zee F, Fitch M, Gonsalves D.** 2002. Virus coat protein transgenic papaya provides practical control of papaya ringspot virus in Hawaii. *Plant Disease* **86**:101-105.
- Ferreira, S.A. Pitz K.Y., Mau R.F.L., Sugiyama L. and Gonsalves D.** (2002) Virus coat protein transgenic papaya provides practical control of Papaya ringspot virus in Hawaii. *Plant Disease* **86**: 101-105.
- Firbank, L. & Smart, S.** 2002. The changing status of arable plants that are important food items for farmland birds. *Aspects of Applied Biology*, **67**, 165-170.
- Firbank, L. G. & Forcella, F.** 2000. Genetically modified crops and farmland biodiversity. *Science*, **289**, 1481-1482.
- Firbank, L. G.** 1999. The diversity of arable plants – past, present and some futures. In: Proceedings of the BCPC conference, Weeds 1999, 251-260. British Crop Protection Council.
- Firbank, L. G., Heard, M. S., Woiod, I. P., Hawes, C., Haughton, A. J., Champion, G. T., Scott, R. J., Hill, M. O., Dewar, A. M., Squire, G. R., May, M. J., Brooks, D. R., Bohan, D. A., Daniels, R. E., Osborne, J. L., Roy, D. B., Black, H. I. J., Rothery, P. & Perry, J. N.** 2003. An introduction to the Farm Scale Evaluations of genetically modified herbicide-tolerant crops. *Journal of Applied Ecology*, **40**, 2-16.
- Firn RD & Jones CG** (1999) Secondary metabolism and the risks of GMOs. *Nature* **400**, 13-14.
- Firn RD & Jones CG** (1999) Secondary metabolism and the risks of GMOs. *Nature*, **400**, 13-14.
- Fisher E and Harding R** (1999) (Eds) *Perspectives on the Precautionary Principle*, Federation Press, Sydney.
- Flechas FW, Latady M.** 2003. Regulatory evaluation and acceptance issues for phytotechnology projects. *Adv. Biochem. Eng. Biotechnol* **78** : 171-185.
- Forbes JM, Blair GE, Chiter A & Perks S** (1998) *Effect of feed processing conditions on DNA fragmentation*. MAFF Research and Development and Surveillance Report No. 376.
- Forcella, F.** 1999. Weed seed bank dynamics under herbicide tolerant crops. Proceedings of BCPC Conference, Weeds 1999, 409-416. British Crop Protection Council.
- Ford M, DuPrat E, Barallon RV, Rogers HJ & Parkes HC** (1996) *The detection of genetically modified foods*. Authenticity '96. Abstract of conference, September 1-3 1996. Institute of Food Research, Norwich.
- Freckleton, R.F. & Watkinson, A.R.** 2002. Are weed population dynamics chaotic? *Journal of Applied Ecology*. **39**, 699-707
- Frischmuth T. and Stanley J.** (1998) Recombination between viral DNA and the transgenic coat protein gene of African cassava mosaic geminivirus. *Journal of General Virology* **79**: 1265-1271.
- Fu TJ** (2002) Digestion stability as a criterion for protein allergenicity assessment. *Ann. NY Acad. Sci.* **964** 99-110.
- Fuller, R. J., Gregory, R. D., Gibbons, D. W., Marchant, J. H., Wilson, J. D., Baillie, S. R. & Carter, N.** 1995. Population declines and range contractions among lowland farmland birds in Britain. *Conservation Biology*, **9**, 1425-1441.
- Futuyama, D.J** (1998) *Evolutionary biology*. Sinauer, Sunderland Ma.
- Gal S., Pisan B., Hohn T., Grimsley N. and Hohn B.** (1992) Agroinfection of transgenic plants leads to viable cauliflower mosaic virus by intermolecular recombination. *Virology* **187**: 525-533.
- Galibert F., Finan T.M., Long,S.R . Galibert F., Finan T.M., Long S.R., Puhler A., Abola P., Ampe F., Barloy-Hubler F., Barnett M.J., Becker A., Boistard P., Bothe G., et al.** (2001). The composite genome of the legume symbiont *Sinorhizobium meliloti*. *Science* **293**: 668 –672.
- Gebhard F. and Smalla K** (1998). Transformation of *Acinetobacter* sp. strain BD413 by transgenic sugar beet DNA. *Applied and Environmental Microbiology* **64(4)**: 1550-1554.

- Gebhard F. and Smalla K.** (1999). Monitoring field releases of genetically modified sugar beets for persistence of transgenic plant DNA and horizontal gene transfer. *FEMS Microbiology Ecology* **28(3)**: 261-272.
- Genewatch** (1998). Genetically engineered oilseed rape: agricultural saviour or new form of pollution. A report. Genewatch, Derbyshire.
- Gertz, J.M. Jr., Vencill, W.K. & Hill, H.S.** 1999. Tolerance of transgenic soybean (*Glycine max*) to heat stress. *Proc. 1999 Brighton Conference - Weeds*, 835-840.
- Gibbons, D. W., Reid, J. B. & Chapman, R. A.** 1994. *The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991*. London: T. & A. D. Poyser.
- Gibbs M.** (1994) Risks in using transgenic plants? *Science* **264**: 1650-1651.
- Gietz R.D. and Woods R.A.** (2001). Genetic transformation of yeast. *Biotechniques* **30(4)**: 816- 820.
- Glandorf DCM, Bakker PAHM** 1997. Influence of the production of antibacterial and antifungal proteins by transgenic plants on the saprophytic soil microflora. *Acta Bot. Neerl.* **46**: 85-104.
- Glandorf, D.C.M., Bakker, P.A.H.M. & Van Loon, L.C.** (1997) Influence of the production of antibacterial and antifungal proteins by transgenic plants on the saprophytic soil microflora. *Acta. Bot. Neerl.*, **46** (1), 85-104.
- Glandorf, D.C.M., Bakker, P.A.H.M. & Van Loon, L.C.** 1997. Influence of the production of antibacterial and antifungal proteins by transgenic plants on the saprophytic soil microflora. *Acta. Bot. Neerl.*, **46** (1), 85-104.
- Goff S, Ricke D et al.** 2002. A draft sequence of the rice genome (*Oryza sativa* L. ssp *japonica*). *Science*. **296**: 92-100.
- Gonsalves C.V., Lee D. R. and Gonsalves D.** (2002) Virus-resistant transgenic papayas: Why bother? American Phytopathological Society, Caribbean Division, La Habana, Cuba, June 11-15, 2001. *Phytopathology* **92** (Supplement) S122.
- González P., Duque M. & Fereres A.** (unpublished). Persistencia de la toxina *Bacillus thuringiensis* var. *kurstaki* (Berliner) procedente de maíz transgénico en suelos y restos de cosecha. Presentation at II. Congreso Nacional de Entomología Aplicada. Pamplona, 12-16 November 2001.
- González P., Duque M. & Fereres A.** (unpublished). Persistencia de la toxina *Bacillus thuringiensis* var. *kurstaki* (Berliner) procedente de maíz transgénico en suelos y restos de cosecha. Presentation at II. Congreso Nacional de Entomología Aplicada. Pamplona, 12-16 November 2001.
- Gray, A., Daniels, R., Raybould, A., Cooper, I., Maskell, L., Pallet, D., Edwards, M-L., Thurston, M. and Alexander, M.** (2003) The conservation of genetic diversity: gene flow from agriculture. In: K. Ammann, Y. Jacot and R. Braun (Eds) *Methods for Risk Assessment of Transgenic Plants IV. Biodiversity and Biotechnology*, pp 105-110. Birkhauser Verlag, Basel.
- Gray, A.J.** (2002a) Risk assessment for LMOs: a European perspective. In: C.R. Roseland (Ed) *LMOs and the Environment*. Proceedings of an International Conference Nov 27-30 2001, OECD, Paris.
- Gray, A.J.** (2002b) The evolutionary context: a species perspective. In: A.J. Davy and M. Perrow (Eds) *Handbook of Ecological Restoration. Volume 1. Principles of Restoration* pp 66-80. Cambridge University Press. Cambridge.
- Greatorex-Davies, J. N. & Roy, D. B.** 2001. The butterfly monitoring scheme report to recorders, 2000. Huntingdon: Institute of Terrestrial Ecology.
- Green, R. E.** 1988. *Stone curlew conservation*. RSPB Conservation Review **2**, 30-33.
- Greene A.E. and Allison R.F.** (1994) Recombination between a viral RNA and transgenic plant transcripts. *Science* **263**: 1423-1425
- Greene A.E. and Allison R.F.** (1996) Deletions in the 3' untranslated region of cowpea chlorotic mottle virus transgene reduce recovery of recombinant viruses in transgenic plants. *Virology* **225**: 231-234.
- Gregory, R.D., Noble, D., Field, R., Marchant, J.H, Raven, M. & Gibbons D.W.** 2003.
- Gressel J.** (1999) Tandem constructs: preventing the rise of superweeds. *Trends Biotechnol.* **17(9)**: 361- 366.
- Grierson D, Lycett GW & Tucker GA** (1996) *Mechanisms and applications of gene silencing*, 43-48. Nottingham University Press.
- Griffiths AJF, Miller JH, Suzuki DT, Lewontin RC & Gelbart WM** (1993) *An introduction to genetic analysis*. Fifth Edition. W. H. Freeman and Company, New York. ISBN 0 7167 2285 2.

- Griffiths, B.S., Geoghegan, I.E. & Robertson, W.M.** (2000) Testing genetically engineered potato, producing the lectins GNA and Con A, on non-target soil organisms and processes. *Journal of Applied Ecology* **37**, 159-170.
- Griffiths, B.S., Geoghegan, I.E. & Robertson, W.M.** 2000. Testing genetically engineered potato, producing the lectins GNA and Con A, on non-target soil organisms and processes. *Journal of Applied Ecology* **37**, 159-170.
- Griffiths, BS, Ritz, K, Wheatley, R, Kuan, HL, Fenwick, C, Christensen, S, Ekelund, F, Sorensen, SJ, Muller, S and Bloem, J** (2001). An examination of the biodiversity-ecosystem function relationship in arable soil microbial communities. *Soil Biology and Biochemistry* **33**: 1851-1858.
- Groot, A.T. & Dicke, M.** (2002) Insect-resistant transgenic plants in a multi-trophic context. *The Plant Journal* **31** (4), 387-406.
- Groot, A.T. & Dicke, M.** 2002. Insect-resistant transgenic plants in a multi-trophic context. *The Plant Journal* **31** (4), 387-406.
- Gura T** (2000) Reaping the plant gene harvest. *Nature*, **287**, 412-414.
- Gurian-Sherman** (2003) *Holes in the biotech safety net: FDA policy does not assure safety of GE foods*. Centre for Science in the Public Interest.
- Hails, R. S.** 2000. *Genetically modified plants – the debate continues*. Trends in Ecology and Evolution, **15**, 14-18.
- Hails, R.S.** (2000) Genetically modified plants – the debate continues. *Trends in Ecology and Evolution*, **15**: 14-18.
- Haines-Young, R. H., Barr, C. J., Black, H. I. J., Briggs, D. J., Bunce, R. G. H., Clarke, R. T., Cooper, A., Dawson, F. H., Firbank, L. G., Fuller, R. M., Furse, M. T., Gillespie, M. K., Hill, R., Hornung, M., Howard, D. C., McCann, T., Morecroft, M. D., Petit, S., Sier, A. R. J., Smart, S. M., Smith, G. M., Stott, A. P., Stuart, R. C. & Watkins, J. W.** 2000. Accounting for nature: assessing habitats in the UK countryside. London: DETR.
- Halfhill, M.R., Millwood, R., Raymer, P. and Stewart, N.** (2002) Bt-transgenic oilseed rape hybridisation with its weedy relative *Brassica rapa*. *Environmental Biosafety Research* **1**: 19-28.
- Hall, L., Topinka, K., Huffman, J., Davis, L. and Good, A.** (2000) Pollen flow between herbicide-resistant *Brassica napus* is the cause of multiple-resistant *B.napus* volunteers. *Weed Science* **48**: 688-694.
- Hammond B, Vicini JL, Hartnell GF, Naylor MW, Knight CD, Robinson E, Fuchs RL & Padgett SR** (1996) The feeding value of soybeans fed to rats, chickens, catfish and dairy cattle is not affected by genetic incorporation of glyphosate tolerance. *J. Nutr.* **126**, 717-727.
- Hammond J.M. Lecoq H. and Raccah B.** (1999) Epidemiological risks from mixed virus infections and transgenic plants expressing viral genes. *Advances in Virus Research* **54**: 189-314.
- Hannick NK, Rosser SJ, Bruce NC.** 2002. Phytoremediation of explosives. *Critical Reviews in Plant Sciences* **21**: 511-538.
- Hannon G.J.** (2002) RNA interference. *Nature* **418**: 244-251.
- Hansen, L.J. & Obrycki, J.** (2000) Field deposition of Bt transgenic corn pollen: lethal effects on the monarch butterfly. *Oecologia* **125**, 241-248.
- Hansen, L.J. & Obrycki, J.** 2000. Field deposition of Bt transgenic corn pollen: lethal effects on the monarch butterfly. *Oecologia* **125**, 241-248.
- Hare P.D. and Chua N-H** (2000). Excision of transgenic marker genes from transgenic plants. *Nat. Biotechnol.* **20** (6): 575-580.
- Harper G, Osuji JO, Heslop-Harrison JS & Hull R** (1999) Integration of banana streak badnavirus into the Musa genome: molecular and cytogenetic evidence. *Virology*, **255**, 207-213.
- Haslberger AG** (2003) GM food: the risk assessment of immune hypersensitivity reactions covers more than allergy. *Food, Agriculture and Environment*, **1**(1), 42-45.
- Hassell, M.P.** 1980. Foraging strategies, population models and biological control: a case study. *Journal of Animal Ecology* **49**, 603-628.
- Haughton, A. J., Bell, J. R., Boatman, N. D. & Wilcox, A.** 2001. The effect of the herbicide glyphosate on non-target spiders. I. Direct effects on *Lepthyphantes tenuis* under laboratory conditions. *Pest Management Science*, **57**, 1033-1036.

- Hay I., Morency M-J. and Seguin A.** (2002) Assessing the persistence of DNA in decomposing leaves of genetically modified poplar trees. *Canadian Journal of Forest Research* **32** (6): 977-982.
- Hayward MD, Bosemark NO & Romagosa I** (1993) *Plant breeding: Principles and prospects*. Chapman and Hall. ISBN 0 412 43390 7.
- Hebblethwaite, J. F.** 1995 *The contribution of no-till to sustainable and environmentally beneficial crop production: a global perspective*. West Lafayette, Indiana: Conservation Technology Information Center.
- Heimlich, R. E., Fernandez-Cornejo, J., McBride, W., Klotz-Ingram, C, Jans, S & Brooks, N.** 2000. Genetically engineered crops: has adoption reduced pesticide use? *Agricultural Outlook*, August, 13-17. Economic Research Service, USDA.
- Hellmich R.L., Siegfried B.D., Sears M.K., Stanley-Horn D.E., Daniels M.J., Mattila H.R., Spencer T., Bidne K.G. and Lewis L.C.** (2001). Monarch larvae sensitivity to *Bacillus thuringiensis*- purified proteins and pollen. *Proc Natl Acad Sci USA*. **98**(21):11925-11930.
- Hellmich, R.L., Siegfried, B.D., Sears, M.K., Stanley-Horn, D.E., Daniels, M.J., Mattila, H.R., Spencer, T., Bidne, K.G. and Lewis, L.C.** (2001). Monarch larvae sensitivity to *Bacillus thuringiensis*- purified proteins and pollen. *Proceedings of the National Academy of Sciences*, **98** (21), 11925-11930.
- Hellmich, R.L., Siegfried, B.D., Sears, M.K., Stanley-Horn, D.E., Daniels, M.J., Mattila, H.R., Spencer, T., Bidne, K.G. and Lewis, L.C.** 2001. Monarch larvae sensitivity to *Bacillus thuringiensis*- purified proteins and pollen. *Proceedings of the National Academy of Sciences*, **98** (21), 11925-11930.
- Hilbeck, A., Baumgartner, M., Fried, P.M. & Bigler, F.** (1998) Effects of transgenic *Bacillus thuringiensis* corn-fed prey on mortality and development time of immature *Chrysoperla carnea* (Neuroptera: Chrysopidae). *Biological Control* **27**, 480-487.
- Hilbeck, A., Baumgartner, M., Fried, P.M. & Bigler, F.** 1998. Effects of transgenic *Bacillus thuringiensis* corn-fed prey on mortality and development time of immature *Chrysoperla carnea* (Neuroptera: Chrysopidae). *Biological Control* **27**, 480-487.
- Hilbeck, A., Moar, W.J., Pusztai-Carey, M., Filippini, A. & Bigler, F.** (1999) Prey-mediated effects of Cry1Ab toxin and protoxin and Cry2A protoxin on the predator *Chrysoperla carnea*. *Entomologia Experimentalis et Applicata* **91**, 305-316.
- Hilbeck, A., Moar, W.J., Pusztai-Carey, M., Filippini, A. & Bigler, F.** (1998) Toxicity of *Bacillus thuringiensis* Cry1Ab toxin to the predator *Chrysoperla carnea* (Neuroptera: Chrysopidae). *Environmental Entomology* **27** (5), 1255-1263.
- Hilbeck, A., Moar, W.J., Pusztai-Carey, M., Filippini, A. & Bigler, F.** 1999. Prey-mediated effects of Cry1Ab toxin and protoxin and Cry2A protoxin on the predator *Chrysoperla carnea*. *Entomologia Experimentalis et Applicata* **91**, 305-316.
- Hilbeck, A., Moar, W.J., Pusztai-Carey, M., Filippini, A. & Bigler, F.** 1998. Toxicity of *Bacillus thuringiensis* Cry1Ab toxin to the predator *Chrysoperla carnea* (Neuroptera: Chrysopidae). *Environmental Entomology* **27** (5), 1255-1263.
- Hilbeck, A.H.** (2002). Transgenic crops and integrated pest management. *Proceedings of the British Crop Protection Conference – 2002 – Pests and Diseases*, 1021-1028.
- Hilbeck, A.H.** 2002. Transgenic crops and integrated pest management. *Proceedings of the British Crop Protection Conference – 2002 – Pests and Diseases*, 1021-1028.
- Hill, J.E.** (1999). Concerns about gene flow and the implications for the development of monitoring protocols. *BCPC Symposium Proceedings No. 72*, 217-224. British Crop Protection Council. Farnham.
- Hin, C. J.A., Schenkelaars, P. & Pak, G. A.** 2001. *Agronomic and environmental impacts of the commercial cultivation of glyphosate tolerant soybean in the USA*. Utrecht: Centre for Agriculture and Environment (CLM).
- Ho M-W., Ryan A. and Cummins J.** (1999) Cauliflower mosaic viral promoter – a recipe for disaster? *Microbial Ecology in Health and Disease* **11**: 194-197.
- Hoffmann, T., C. Golz, O. Schieder** (1994) Foreign DNA sequences are received by a wild-type strain of *Aspergillus niger* after co-culture with transgenic higher plants. *Current Genetics* **27**: 70-76

- Hohlweg U & Doerfler W** (2001) On the fate of plant or other foreign genes upon the uptake in food or after intramuscular injection in mice. *Molecular and General Genetics*, **265**, 225-233.
- HoL** (2000) *Science and Society*. UK House of Lords Select Committee on Science and Technology, 3<sup>rd</sup> Report, HL 38, HMSO, London.
- Hole, D. G., Whittingham, M. J., Bradbury, R. B., Anderson, G. Q. A., Lee, P. L. M., Wilson, J. D. & Krebs, J. R.** 2002. Widespread local house sparrow extinctions. *Nature*, **418**, 931-932.
- Home Grown Cereals Authority.** 1999. Information on area and yield of winter and spring oil seed rape in the UK. HGCA.
- House of Lords Select Committee on the European Communities** (1999) *EC Regulation of Genetic Modification in Agriculture*. London: HMSO
- House, G. J. & Parmalee, R. W.** 1985. Comparisons of soil arthropods and earthworms from conventional and no-tillage agro-ecosystems. *Soil Tillage Research*, **5**, 351-360.
- HSE** (1999) *Reducing Risks, Protecting People*. UK Health and Safety Executive, HSE, London.
- Huang C.Y., Ayliffe M.A. and Timmis J.N.** (2003). Direct measurement of the transfer rate of chloroplast DNA into the nucleus. *Nature* **422(6927)**: 72-76
- Huang F., Buschman L.L., Higgins R.A. and McGaughey W.H** (1999). Inheritance of Resistance to *Bacillus thuringiensis* Toxin (Dipel ES) in the European Corn Borer. *Science*. **284**: 965-967.
- Huang J et al.** 2002. Plant biotechnology in China. *Science* **295**, 674-676
- Huang N, Angeles ER, Domingo J, Magpantay G, Singh S, Zhang G, Kumaravadivel N, Bennett J, Khush GS.** 1997. Pyramiding of bacterial blight resistance genes in rice: marker-assisted selection using RFLP and PCR. *Theor Appl Genet* **95**: 313-320
- Huel P.** (1996). Out-crossing rates for 10 Canadian spring wheat cultivars. *Can. J. Plant Sci.* **76**: 423-427.
- Hull R., Covey S.N. and Dale P.** (1999) Genetically modified plants and the 35S promoter: assessing the risks and enhancing the debate. *Microbial Ecology in Health and Disease* **12**: 1-5.
- Hupfer C, Hotzel H, Sachse K & Engel KH** (1998) Detection of the genetic modification in heat-treated products of Bt-maize by polymerase chain reaction. *Z. Lebensm. Unters. Forsch.* **206**, 203-207.
- Hupfer C, Hotzel H, Sachse K, Moreano F & Engel KH** (2000) PCR-based quantitation of genetically modified Bt maize: single-competitive versus dual-competitive approach. *European Food Research and Technology*, **212**, 95-99.
- IAEA** (1995) *Induced mutations and molecular techniques for crop improvement*. Proceedings of an international symposium on the use of induced mutations and molecular techniques for crop improvement. Organised jointly by the International Atomic Energy Agency and the Food and Agriculture Organisation of the United Nations, in Vienna. ISBN 92 0 104695 2.
- ICSU.**2003.New Genetics,Food and Agriculture: Scientific Discoveries-Societal Dilemmas. 56pp. [www.icsu.org](http://www.icsu.org)
- ILGRA** (2001) *The Precautionary principle: Policy and Application*. UK Interdepartmental Liaison Group on Risk Assessment, Health and Safety Executive, November 2000
- ILSI Europe** (2001) *Genetic modification technology and food. Consumer Health and Safety*. Concise Monograph.
- ILSI News** (2002) Omega-3 fatty acids: good for the heart and the head? **20**, No. 4.
- Impact Consortium.** 1999. Transgenic plants with novel properties for disease and pest control. In : Harnessing the potential of genetically modified microorganisms and plants. Luxembourg office for official publications of the European Communities ISBN 92-894-0295-4 52pp. pp 33-36.
- Ingram, J.** (2000) Report on the separation distances required to ensure cross-pollination is below specified limits in non-seed crops of sugar beet, maize and oilseed rape: National Institute of Agricultural Botany. Cambridge.
- ISAAA** (2003) *Global status of commercialised transgenic crops*. ISAAA Briefs No. 27, 2002.
- J American College of Nutrition** (2002) *The future of food and nutrition with biotechnology*. Supplement, **21**, 157S-221S.
- Jacot, Y. and Ammann, K.** (1999). Gene flow between selected Swiss crops and related weeds: risk assessment for the field releases of GMOs in Switzerland. In: K. Ammann, Y. Jacot, V. Simonsen

- and G Kjellson (Eds) *Methods for risk assessment of transgenic plants III, Ecological risks and prospects of transgenic plants*, pp 99-108. Birkhauser Verlag, Basel.
- Jacquet C., Ravelonandro M. and Dunez J.** (1998) High resistance and control of biological risks in transgenic plants expressing modified plum pox virus coat protein. *Acta Virologica* **42**: 235-237.
- James, C.** 2001 Global review of commercialized transgenic crops, 2000. ISAAA Briefs, 23. Ithaca: ISAAA.
- Jarvis, D.I. and Hodgkin, T.** (1999) Wild relatives and crop cultivars: detecting natural introgression and farmer selection of new genetic combinations in agroecosystems. *Molecular Ecology* **8**: 159-173.
- Jasinski, J., Easley, B., Young, C., Wilson, H. & Kovach, J.** 2001. Beneficial arthropod survey in transgenic and non-transgenic crops in Ohio. Special Circular - Ohio Agricultural Research and Development Center, 179, 99-102.
- Jayaraman, K. S.** 2002. Poor crop management plagues Bt cotton experiment in India. *Nature Biotechnology* **20**: 1069
- Jenkins J (ed).** *Remaking the Landscape. The Changing Face of Britain*. Profile Books, London
- Jeon JS, Lee S, Jung KH, Jun SH, Jeong DH, Lee J, Kim C, Jang S, Yang K, Nam J, An K, Han MJ, Sung RJ, Choi HS, Yu JH, Choi JH, Cho SY, Cha SS, Kim SI & An G** (2000) T-DNA insertional mutagenesis for functional genomics in rice. *The Plant Journal*, **22(6)**, 561-570.
- Jobin, B., Boutin, C. & DesGranges, J. L.** 1997. Effects of agricultural practices on the flora of hedgerows and woodland edges in southern Quebec. *Canadian Journal of Plant Science*, **77**, 293-299.
- Johnson B.** 2000. Problems of plant conservation in agricultural landscapes: can biotechnology help or hinder? *English Nature*.
- Johnston DT, Van Wijk AJP, Kilpatrick D.** 1989. Selection for tolerance to glyphosate in fine-leaved *Sestuca* species. Chapter 4: 103-105.
- Jones, N. E., Maulden, K. A. & Masey, R. G.** 1999. The impact of integrated and conventional farming systems on the soil seed bank at the crop margin and within field. *Aspects of Applied Biology*, **54**, 85-92.
- Jorgensen, R.B. and Andersen, B** (1994) Spontaneous hybridisation between oilseed rape (*Brassica napus*) and weedy *Brassica campestris* – a risk of growing genetically modified rape. *American Journal of Botany*, **81**: 1620-1626.
- Jorgensen, R.B., Ammitzball, H., Hansen, L.B. and Hanser, T.P.** (2003) in press. Gene introgression and consequences in Brassica. In: 'Introgression from Genetically Modified Plants into wild relatives and its consequences' Proceedings of an ESF Conference 21-24 January 2003, Amsterdam.
- Kaneko T., Nakamura Y. Sato S. Minamisawa K. Uchiumi T. Sasamoto S Watanabe A. Idesawa K. Iriguchi M. Kawashima K. Kohara M. Matsumoto M. Shimpo S. Tsuruoka H. Wada T. Yamada M. and Tabata S.** Complete Genomic Sequence of Nitrogen-fixing Symbiotic Bacterium *Bradyrhizobium japonicum* USDA110 (2002). *DNA Research* **9**: 189-197.
- Kaneko, T., Nakamura, Y., Sato, S., Asamizu, E., Kato, T., Sasamoto, S. et al.** (2000) Complete genome structure of the nitrogen-fixing symbiotic bacterium *Mesorhizobium loti*. *DNA Research* **7**: 331-338.
- Kao T.H. and Mc. Cubbin A.G.** (1996). How flowering plants discriminate between self and non-self pollen to prevent inbreeding. *Proc. Nat. Acad. Sci. USA*. **93(22)**: 12059 –12065.
- Kaplinsky N., Braun D., Lisch D., Hay A., Hake S. and Freeling M.** (2002). Maize transgene results in Mexico are artefacts. *Nature*: **416**: 601.
- Karasev A.V.** (2000) Genetic diversity and evolution of closteroviruses. *Annual Review of Phytopathology* **38**: 293-324.
- Karp A** (1991) *Current understanding of somaclonal variation*. In: Oxford Surveys of Plant Molecular and Cell Biology (Ed. B.J. Mifflin), 1-58. Oxford University Press.
- Kay E, Vogel TM, Bertolla F, Nalin R & Simonet P** (2002) *In situ* transfer of antibiotic resistance genes from transgenic (transplastomic) tobacco plants to bacteria. *Applied and Environmental Microbiology*, **68**, 3345-3351.



- Kay E., Bertolla F., Nalin R., Vogel T. M. and Simonet P.** (2002). Transfer of Antibiotic Resistance Genes from Transgenic (Transplastomic) Tobacco Plants to Bacteria. *Appl. Environ. Microbiol.* **68**: 3345-3351.
- Kay S. and Van den Eede G.** (2001). The limits of GMO detection. *Nature Biotechnology.* **19(5)**: 405-406.
- Khush G, Bacalangco E, Ogawa T.** 1990. A new gene for resistance to bacterial blight from *O. Longistaminata*. *Rice Genet Newsl* **12**: 9-115
- Kidwell M** (1993) Lateral transfer in natural populations of eukaryotes. *Annual Review of Genetics*, **27**, 235–256.
- Kimber I, Dearman RJ, Penninks AH, Knippels LMJ, Buchanan RB, Hammerberg B, Jackson HA & Helm RM** (2003) Assessment of protein allergenicity on the basis of immune reactivity: animal models. *Environmental Health Perspectives* **111(8)**, 1125-1130.
- Kleijn, D. & Sutherland, W.J (in press).** How effective are European agri-environment schemes in conserving and promoting biodiversity? *Journal of Applied Ecology*
- Klein J, Altenbuchter J & Mattes R** (1998) Nucleic acid and protein elimination during the sugar manufacturing process of conventional and transgenic sugar beets. *J. Biotechnology*, **60**, 145-153.
- Klotz A & Einspanier R** (1998) Nachweis von 'Novel-Feed' im Tier? Beeinträchtigung des Verbrauchers von Fleisch oder Milch ist nicht zu erwarten. (Detection of 'Novel Feed' in animals? Injury of consumers of meat or milk is not expected.) *Mais*. **3**, 109-111.
- Kohli A, Griffiths S., Palacios N., Twyman R.M., Vain P., Laurie D.A. and Christou P.** (1999) Molecular characterisation of transforming plasmid rearrangements in transgenic rice reveals a recombination hotspot in the CaMV 35S promoter and confirms the predominance of microhomology-mediated recombination. *The Plant Journal* **17**: 591-601.
- Komari T, Hiei Y, Saito Y, Murai N & Kumashiro T** (1996) Vectors carrying two separate T-DNAs for co-transformation of higher plants mediated by *Agrobacterium tumefaciens* and segregation of the transformants freed from selection marker. *Plant Journal*, **10**, 165-174.
- Koonin EV, Makarova KS, Aravind L.** (2001). Horizontal gene transfer in prokaryotes: Quantification and classification. *Annual Review Of Microbiology.* **55**: 709-742 2001.
- Krebs, J. R., Wilson, J. D., Bradbury, R. B. & Siriwardena, G. M.** 1999. The second Silent Spring? *Nature*, **400**, 611-612.
- Ku MS, Cho D, Li X, Jiao DM, Pinto M, Miyao M, Matsuoka M.** 2001. Introduction of genes encoding C4 photosynthesis enzymes in rice plants: physiological consequences. *In* Novartis Foundation Symposium 236. Rice Biotechnology: Improving yield, stress tolerance and grain quality. 272pages. pp100-116.
- Kuiper HA, Kleter GA, Noteboom PJM & Kok EJ** (2001) Assessment of the food safety issues related to genetically modified foods. *The Plant Journal*, **27(6)**, 503-528.
- Kuiper HA, Kok EJ, Engel KH** (2003) Exploitation of molecular profiling techniques for GM food safety assessment. *Current Opinion in Biotechnology*, **14**, 238-243.
- Kuiper HA, Noteborn HPJM, Peijnenburg AACM** (1999) Commentary: adequacy of methods for testing the safety of genetically modified foods. *The Lancet*, **354**, S1315-1316.
- Labra M et al** (2001) Genomic changes in transgenic rice (*Oryza sativa* L.) plants produced by infecting calli with *Agrobacterium tumefaciens*. *Plant cell Reports* **20(4)**, 325-330.
- Lafren, J. M., Foster, G. R. & Onstad, C. A.** 1985. Simulation of individual-storm soil loss for modeling the impact of soil erosion on crop productivity. In: El-Swaify, S. A., Moldenhauer, W. C. & Lo, A. (eds) Soil erosion and conservation, pp285-295. Ankeny, IA: Soil and Water Conservation Society.
- Lemaux PG & Frey P** (2002) University of California Division of Agricultural and Natural Resources. Biotechnology information accessed May 2002. <http://ucbiotech.org>
- Levidow L & Murphy J** (2003) *The Decline of Substantial Equivalence: how civil society demoted a risky concept*. Paper for conference at Institute of Development Studies, 12-13 December 2002, Science and citizenship in a global context: challenges from new technologies.
- Levidow L, Carr S, Schomberg R & Wield D** (1998) European biotechnology regulation: framing the risk assessment of a herbicide-tolerant crop. *Science, Technology and Human Values*, **22 (4)**, 472-505.
- Lewin B** (2000) *Genes VII*. Oxford University Press, ISBN 0 19 879277 8.

- Libiakova G., Jørgensen B., Palmgren G., Ulvskov P. and Johansen E.** (2001). Efficacy of an intron-containing kanamycin resistance gene as a selectable marker in plant transformation *Plant Cell Rep* **20**: 610–615.
- Lim P.O., Lee U., Ryu J. S., Choi J. K., Hovanessian A., Kim C. S., Cho B., Ho N. and Hong G.** (2002). Multiple virus resistance in transgenic plants conferred by the human dsRNA-dependent protein kinase. *Molecular Breeding* **10**: 11-18.
- Lim PO et al** (2002) Multiple virus resistance in transgenic plants conferred by the human dsRNA-dependent protein kinase. *Molecular Breeding*, **10**, 11-18.
- Lin, W., Price, G. K. & Fernandez-Cornejo, J.** 2001. Estimating farm level effects of adopting herbicide-tolerant soybeans. Oil Crops Situation Outlook. ERS/USDA.
- Linder, C.R.** (1999) A targeted approach to risk assessment: seed bank dynamics in *Brassica*. In: A.J. Gray, F. Amijee and C. J. Gliddons (Eds) *Environmental impact of genetically modified crops*, pp 113-122. DETR Research Report No. 10, London.
- Linder, C.R. and Schmidt, J.** (1994) Assessing the risks of transgene escape through time and crop-wild hybrid persistence. *Molecular Ecology*, **3**: 23-30.
- Linder, C.R., Taha, I., Seiler, G.J, Snow, A.A. and Rieseberg** (1998) Long-term introgression of crop genes into wild sunflower population. *Theoretical and Applied Genetics* **96**: 339-347.
- Lindsey K** (1998) *Transgenic Plant Research*. Harwood Academic Publishers, Amsterdam. ISBN 90 5702 326 1.
- Lockhart, J. A. R., Samuel, A., & Greaves, M. P.** 1989. The evolution of weed control in British agriculture. In: Hance, R. J. & Holly, K. (eds) *Weed Control Handbook: Principles*, pp 43-74. Oxford: Blackwell Scientific Publications.
- Lockley, R.M.** 1954. Failure of myxomatosis on Skokholm Island. *Nature* **145**, 906-7
- Lommel S. and Xiong Z.** (1991) Reconstitution of a functional red clover necrotic mottle virus by recombinational rescue of the cell-to-cell movement protein. *Journal of Cellular Biochemistry* **15A**, Abstract 151.
- Lopez-Bucio J, Nieto-Jacobo MF, Ramirez-Rodrigues V, Herrera-Estrella L.** 2000. Organic acid metabolism in plants: from adaptive physiology to transgenic varieties for cultivation in extreme soils. *Plant Science* **160**: 1-13.
- Lorenz M.G., Aardema B.W. and Wackernagel W.** (1988). Highly efficient genetic transformation of *Bacillus subtilis* attached to sand grains. *J Gen Microbiol.* **134(1)**:107-112.
- Lorenz M.G., and Wackernagel W.** (1990). Natural genetic transformation of *Pseudomonas stutzeri* by sand-adsorbed DNA. *Arch. Microbiol.* **154(4)**: 380 - 385.
- Lorenz M.G., and Wackernagel W.** (1994). Review. Bacterial gene-transfer by natural genetic transformation in the environment. *Microbiological Reviews* **58 (3)**: 563-602.
- Lorenz MG & Wackernagel W** (1994) Bacterial gene transfer by natural genetic transformation in the environment. *Microbiological Reviews*, **58**, 563-602.
- Lorenz, E** 1995. Mechanical methods to control weeds in sugar beet and the affect on ground beetles and other arthropods. PhD thesis, University of Gottingen.
- Losey J E, Rayor LS & Carter ME.** 1999. Transgenic pollen harms monarch larvae. *Nature* **399**, 214.
- Losey, J.E., Rayor, L.S. & Carter, M.E.** (1999) Transgenic pollen harms monarch larvae. *Nature*, **399**, 20 May 1999, 214.
- Losey, J.E., Rayor, L.S. & Carter, M.E.** 1999. Transgenic pollen harms monarch larvae. *Nature*, **399**, 20 May 1999, 214.
- Lövei, G.L., Felkl, G., Brødsgaard, H.F. & Hansen, L.M.** (2001) Environmental risks of insect-tolerant transgenic plants. *DJF-Rapport* No. **41**: 171-176, Denmark.
- Lövei, G.L., Felkl, G., Brødsgaard, H.F. & Hansen, L.M.** 2001. Environmental risks of insect-tolerant transgenic plants. *DJF-Rapport* No. **41**: 171-176, Denmark.
- Lundgren, J.G. & Wiedenmann, R.N.** (2002) Coleopteran-specific Cry3Bb toxin from transgenic corn pollen does not affect the fitness of a nontarget species, *Coleomegilla maculata* DeGeer (Coleoptera: Coccinellidae). *Environmental Entomology* **31** (6), 1213-1218.

- Lundgren, J.G. & Wiedenmann, R.N.** 2002 Coleopteran-specific Cry3Bb toxin from transgenic corn pollen does not affect the fitness of a nontarget species, *Coleomegilla maculata* DeGeer (Coleoptera: Coccinellidae). *Environmental Entomology* **31** (6), 1213-1218.
- Luo G, Ivics Z, Izsvák Z & Bradley A.** (1998) Chromosomal transposition of a Tc1/mariner-like element in mouse embryonal stem cells. *Proceedings of the National Academy of Sciences USA*. **95**, 10769–10773).
- Ma JK, Hiatt A, Hein M, Vine ND, Wang F, Stabila P, van Dolleweerd C, Mostov K & Lehner T** (1995) Generation and assembly of secretory antibodies in plants. *Science*, **268**, 716-719.
- MAFF** (1998, 2000) *The effects of commercial scale processing on the integrity of DNA in animal feeds*. MAFF Research and Development and Surveillance Reports No's 411 (1998) & 571 (2000).
- Majewski J. and Cohan F.M.** (1999). DNA sequence similarity requirements for interspecific recombination in bacillus. *Genetics* **153**(4): 1525-1533.
- Mariani C. De Beuckeleer M., Truettner J., Leemans J. and Goldberg R. B.** (1990). Induction of male sterility in plants by a chimeric ribonuclease gene. *Nature*: **347**: 737-741
- Mariani C., Gossele V., De Beuckeleer M., De Block M., Goldberg R.B., De Greef W. and Leemans J.** (1992). A chimeric ribonuclease-inhibitor gene restores fertility to male sterile plants. *Nature*: **357**: 384-387.
- Marshall LC, Somers DA, Dotray PD, Gengenbach BG, Wyse DL, Gronwald JW** (1992)
- Marshall, E. J. P.** 1991. *Patterns of distribution of plants in the fields and their boundaries*. In: *Grieg-Smith, P. W., Frampton, G. K. & Hardy, A. R. (eds) The Boxworth Project: pesticides, cereal farming and the environment*. London: HMSO.
- Martienssen R & Springer P** (1998) *Enhancer and Gene Trap Transposon Mutagenesis in Arabidopsis*. In: *Insertional Mutagenesis: a practical approach* (G. Coupland, ed) Oxford University Press. <http://genetrapp.cshl.org/traps.html>
- Martin-Orue SM, O'Donnell AG, Arino J, Netherwood T, Gilbert HJ & Mathers JC** (2002) Degradation of transgenic DNA from genetically modified soya and maize in human intestinal simulations. *British Journal of Nutrition*, **87**, 533-542.
- Maskell, L. C., Raybould, A. F., Cooper, J. I., Edwards, M-L. and Gray, A. J.** (1999) Effects of turnip mosaic virus and turnip yellow mosaic virus on the survival, growth and reproduction of wild cabbage (*Brassica oleracea*). *Annals of Applied Biology* **135**: 401-407.
- Masuta C., Kuwata S., Matzuzaki T., Takanami Y. and Koiwai A.** (1992) A plant virus satellite RNA exhibits a significant sequence complementarity to a chloroplast tRNA. *Nucleic Acids Research* **20**: 2885.
- Matzke MA, Aufsatz W, Kanno T, Mette MF, & Matzke AJ** (2002) Homology-dependent gene silencing and host defense in plants. *Advances in Genetics*, **46**, 235-275.
- Mayo M.A. and Jolly C.A.** (1991) The 5'-terminal sequence of potato leafroll virus RNA: evidence for recombination between virus and host RNA. *Journal of General Virology* **72**: 2591-2595.
- Mazur, B. and Falco, C.** The development of herbicide resistant crops. *Ann Rev Plant Physiol and Plant Mol Biol* **40**: 441-470
- McKinney HH** (1929) Mosaic diseases in the Canary Islands, West Africa and Gibraltar. *Journal of Agricultural Research* **39**: 557-578.
- McRoberts, N. & Hughes, G.** 2001. Killing or culling? Is it possible to manage weeds as a resource? . *Proceedings of BCPC Conference, Weeds 2001*,1, 383-390. British Crop Protection Council.
- Meagher RB.** 2000. Phytoremediation of toxic elemental and organic pollutants. *Curr Opinion in Plant Biology* **3** (2) 153-162.
- Meier P. and Wackernagel W.** (2003). Monitoring the spread of recombinant DNA from field plots with transgenic sugar beet plants by PCR and natural transformation of *Pseudomonas stutzeri*. *Transgenic Res* **12** (3): 293-304.
- Mercer DK, Scott KP, Bruce-Johnson WA, Glover LA & Flint HJ** (1999) Fate of free DNA and transformation of the oral bacterium *Streptococcus gordonii* DL1 by plasmid DNA in human saliva. *Applied & Environmental Microbiology*, **65**, 6-10.
- Mercer DK, Scott KP, Melville CM, Glover LA & Flint HJ** (2001) Transformation of an oral bacterium via chromosomal integration of free DNA in the presence of human saliva. *FEMS Microbiology Letters*, **200**, 163-167.

- Metcalf DD, Astwood JD, Townsend R, Sampson HA, Taylor SL & Fuchs RL** (1966) Assessment of the allergenic potential of foods derived from genetically engineered crop plants. *Crit. Rev. Food Sci. Nutr.* **36**, S165-S186.
- Metz M. and Fütterer J.** (2002). Suspect evidence of transgenic contamination. *Nature*. **416**: 600-601.
- Miller HI.** 2003. Will we reap what biopharming sows? *Nature Biotechnology* **21**:480-481.
- Miller W.A., Koev G. and Mohan B.R.** (1997). Are there risks associated with transgenic resistance to luteoviruses? *Plant Disease* **81**: 700-710.
- Millstone EP, Brunner EJ & Mayer S** (1999) Beyond 'substantial equivalence'. *Nature*, **401**, 525–526.
- Moar, W.J., Eubanks, M., Freeman, B., Turnipseed, S., Ruberson, J. & Head, G.** (unpublished). Effects of Bt cotton on biological control agents in the southeastern United States.
- Moar, W.J., Eubanks, M., Freeman, B., Turnipseed, S., Ruberson, J. & Head, G.** (unpublished). Effects of Bt cotton on biological control agents in the southeastern United States.
- Moorcroft, D., Whittingham, M. J., Bradbury, R. B. & Wilson, J. D.** 2002. The selection of stubble fields by wintering granivorous birds reflect vegetation cover and food abundance. *Journal of Applied Ecology*, **39**, 535-547.
- Moreby, S. J. & Southway, S. E.** 1999. Influence of autumn applied herbicides in summer and autumn food available to birds in winter wheat fields in southern England. *Agriculture, Ecosystems and Environment*, **72**, 285-297
- Morjan W.E., Pedigo L.P. and Lewis LC.** (2002). Fungicidal effects of glyphosate and glyphosate formulations on four species of entomopathogenic fungi. *Environmental Entomology*. **31(6)**:1206-1212.
- Morris J** (2000) (Ed) *Rethinking Risk and the Precautionary Principle*, Nutterworth Heinemann, London.
- Muir WM and Howard RD.** 2001. Fitness components and ecological risk of transgenic release: A model using Japanese medaka (*Oryzias latipes*). *American Naturalist* **158**: 1-16.
- Mundt, C. C.** 2002 Use of multiline cultivars and cultivar mixtures for disease management. *Annual Review of Phytopathology* **40**; 381-410
- Munkvold GP & Hellmich RL** (1999) Comparison of fumonisin concentrations in kernels of transgenic Bt maize hybrids and non-transgenic hybrids. *Plant Disease*. **83**, 130-138.
- Murray S.L., Thompson G., Visser A. and Berger D. K.** (2002) Transgenic potatoes (cv. Late Harvest) show increased tolerance to potato leafroll virus in greenhouse and field trials. *South African Journal of Science* **98**: 97-101.
- Musser FR, Shelton AM.** 2003. Bt sweet corn and selective insecticides : impacts on pests and predators. *J. Econ. Entomol.* **96** (1) : 71-80
- Nap J.P., Metz P. L. J., Escaler M. and Conner A.J.** (2003). The release of genetically modified crops into the environment. Part I. Overview of current status and regulations. *The Plant Journal*. **33(1)**: 1–33.
- Nap JP, Bijvoet JB & StiekmaWJ** (1992) Biosafety of kanamycin-resistant transgenic plants. *Transgenic Research*. **1**, 239-249.
- NAS** (1987) *Introduction of recombinant DNA-engineered organisms into the environment: key issues*. National Academy of Sciences, Washington DC.
- National Research Council.** 2000. Genetically modified pest protected plants, National Academy Press
- Naylor, R. E. L. and P. J. Lutman.** 2002. What is a weed? *Weed Managment Handbook*. R. E. L. Naylor. Oxford, Blackwell Publishing: 1-15.
- Ndowora T, Dahal G, LaFleur D, Harper G, Hull R, Olszewski NE & Lockhart B** (1999) Evidence that badnavirus infection in Musa can originate from integrated pararetroviral sequences. *Virology*, **255**:214-220.
- Netherwood T, Martin-Orue SM, O'Donnell AG, Gockling S, Gilbert H & Mathers J** (2002) Transgenes in genetically modified soya survive passage through the human small bowel but are completely degraded in the colon. Technical report on Food Standards Agency project G010008. <http://www.food.gov.uk/multimedia/pdfs/gmnewcastlereport.PDF>

- Ng CH, Wickneswari R, Salimijah S, Teng YT, Ismail BS.** 2003. Gene polymorphisms in glyphosate-resistant and -susceptible biotypes of *Eleusine indica* from Malaysia. *Weed Res* 43: 108-115.
- Nielsen K. M., Bones A. M., Smalla K. and van Elsas J.D.** (1998). Horizontal gene transfer from transgenic plants to terrestrial bacteria – a rare event? *FEMS Microbiology Reviews*. **22 (2)**:79-103.
- Nielsen K.M. and van Elsas J.D.** (2001). Stimulatory effects of compounds present in the rhizosphere on natural transformation of *Acinetobacter* sp. Bd413 in soil. *Soil Biology and Biochemistry* **33**: 345–357.
- Nielsen K.M., van Elsas J.D. and Smalla K.** (2000 b). Transformation of *Acinetobacter* sp strain BD413(pFG4 Delta nptII) with transgenic plant DNA in soil microcosms and effects of kanamycin on selection of transformants. *Applied and Environmental Microbiology* **66(3)**: 1237-1242.
- Nix, J.** 2001. Farm Management Pocketbook. Ashford: Wye College.
- NRC** (1989) *Field testing genetically modified organisms: framework for decisions*. Committee on Scientific Evaluation of the Introduction of Genetically Modified Microorganisms and Plants into the Environment, National Research Council, Washington DC.
- NRC** (1996) *Understanding Risk: informing decisions in a democratic society*. Fineberg H, Stern P, National Research Council Committee on Risk Characterisation, National Academy Press, Washington.
- Nuffield Council on Bioethics.** 1999. *Genetically Modified Crops: The Social and Ethical Issues*. Nuffield Council on Bioethics, London
- Nunome T, Fukumoto F., Terami F., Hanada K. and Hirai M.** (2002) Development of breeding materials of transgenic tomato plants with a truncated replicase gene of cucumber mosaic virus for resistance to the virus. *Breeding Science* **52**: 219-223.
- O’Connell A, Holt K, Pignemal J, Grima-Pettenati J, Boudet A, Pollet B, Lapierre C, Petit-Conil M, Schuch W, Halpin C.** 2002. Improved paper pulp from plants with suppressed cinnamoyl-CoA reductase or cinnamoyl alcohol dehydrogenase. *Transgenic Research* 11 (5) : 495-503.
- O’Riordan T & Jordan A** (2000) *Reinterpreting the Precautionary Principle*. Cameron May, London.
- Oberhauser K.S., Prysby M.D., Mattila H.R., Stanley-Horn D.E., Sears M.K., Dively G., Olson E., Pleasants J.M., Lam W.K., and Hellmich R.L.** (2001). Temporal and spatial overlap between monarch larvae and corn pollen. *Proc. Natl. Acad. Sci. USA*. 98(21):11913-11918.
- Oberhauser, K.S., Prysby, M.D., Mattila, H.R., Stanley-Horn, D.E., Sears, M.K., Dively, G., Olson, E., Pleasants, J.M., Lam, W-K.F. and Hellmich R.L.** (2001). Temporal and spatial overlap between monarch larvae and corn pollen. *Proceedings of the National Academy of Sciences*. **98** (21), 11913-11918.
- Oberhauser, K.S., Prysby, M.D., Mattila, H.R., Stanley-Horn, D.E., Sears, M.K., Dively, G., Olson, E., Pleasants, J.M., Lam, W-K.F. and Hellmich R.L.** 2001. Temporal and spatial overlap between monarch larvae and corn pollen. *Proceedings of the National Academy of Sciences*. **98** (21), 11913-11918.
- Obrycki, J.J., Losey, J.E., Taylor, O.R., and Jesse, L.C.H.** (2001) Transgenic insecticidal corn: beyond insecticidal toxicity to ecological complexity. *BioScience* **51** (5), 353-361.
- Obrycki, J.J., Losey, J.E., Taylor, O.R., and Jesse, L.C.H.** 2001. Transgenic insecticidal corn: beyond insecticidal toxicity to ecological complexity. *BioScience* **51** (5), 353-361.
- OECD** (1993a) *Safety evaluation of foods derived by modern biotechnology, concepts and principles*. Organization for Economic Cooperation and Development, Paris.
- OECD** (1993b) *Guidelines for the testing of chemicals*. Organisation for Economic Cooperation and Development, Paris.
- OECD** (2000) *GM food safety: facts, uncertainties and assessment*. OECD conference on the scientific and health aspects of genetically modified foods, 23 February – 1 March 2000, Edinburgh.
- OECD** (2001a) *Consensus document on key nutrient and key toxicants in low erucic acid rapeseed (Canola)*. Series on the safety of novel foods and feeds No. 1, ENV/JM/MONO(2001)13. Organisation for Economic Cooperation and Development, Paris.  
[http://www.olis.oecd.org/olis/2001doc.nsf/LinkTo/env-jm-mono\(2001\)13](http://www.olis.oecd.org/olis/2001doc.nsf/LinkTo/env-jm-mono(2001)13)

- OECD** (2001b) *Consensus document on compositional considerations for new varieties of soybean: key food and feed nutrients and anti-nutrients*. Series on the safety of novel foods and feeds No. 2, ENV/JM/MONO(2001)15. Organisation for Economic Cooperation and Development, Paris. [http://www.olis.oecd.org/olis/2001doc.nsf/LinkTo/env-jm-mono\(2001\)15](http://www.olis.oecd.org/olis/2001doc.nsf/LinkTo/env-jm-mono(2001)15)
- OECD** (2002a) *Consensus document on compositional considerations for new varieties of sugar beet: key food and feed nutrients and antinutrients*. Series on the safety of novel foods and feeds No. 3, ENV/JM/MONO(2002)4. Organisation for Economic Cooperation and Development, Paris. [http://www.olis.oecd.org/olis/2002doc.nsf/LinkTo/env-jm-mono\(2002\)4](http://www.olis.oecd.org/olis/2002doc.nsf/LinkTo/env-jm-mono(2002)4)
- OECD** (2002b) *Consensus document on compositional considerations for new varieties of potatoes: key food and feed nutrients, anti-nutrients and toxicants*. Series on the safety of novel foods and feeds No. 4, ENV/JM/MONO(2002)5. Organisation for Economic Cooperation and Development, Paris. [http://www.olis.oecd.org/olis/2002doc.nsf/LinkTo/env-jm-mono\(2002\)5](http://www.olis.oecd.org/olis/2002doc.nsf/LinkTo/env-jm-mono(2002)5)
- OECD** (2002c) *Consensus document on compositional considerations for new varieties of maize (Zea Mays): key food and feed nutrients, anti-nutrients and secondary plant metabolites*. Series on the safety of novel foods and feeds No. 6, ENV/JM/MONO(2002)25. Organisation for Economic Cooperation and Development, Paris. [http://www.olis.oecd.org/olis/2002doc.nsf/LinkTo/env-jm-mono\(2002\)25](http://www.olis.oecd.org/olis/2002doc.nsf/LinkTo/env-jm-mono(2002)25).
- Oger, P., Farrand, S. K.** (2002). Two Opines Control Conjugal Transfer of an Agrobacterium Plasmid by Regulating Expression of Separate Copies of the Quorum-Sensing Activator Gene traR. *J. Bacteriol.* **184**: 1121-1131
- Okada Y., Nishiguchi M., Sait A., Kimura T., Mori M., Hanada K., Sakai J., Matsuda Y. and Murata T.** (2002) Inheritance and stability of the virus-resistant gene in the progeny of transgenic sweet potato. *Plant Breeding* **121**: 249-253.
- Orr, D.B. & Landis, D.A.** (1997) Oviposition of European corn borer (Lepidoptera: Pyralidae) and impact of natural enemy populations in transgenic versus isogenic corn. *Journal of Economic Entomology* **90** (4), 905-909.
- Orr, D.B. & Landis, D.A.** 1997. Oviposition of European corn borer (Lepidoptera: Pyralidae) and impact of natural enemy populations in transgenic versus isogenic corn. *Journal of Economic Entomology* **90** (4), 905-909.
- Orson, J.** (2002) Gene stacking in herbicide tolerant oilseed rape: lessons from the North American experience. *English Nature Research Report* No.443. English Nature: Peterborough.
- Ow D** (2002) Recombinase-directed plant transformation for the post-genomic era. *Plant Molecular Biology*, **48**, 183-200.
- Owen, M. D. K.** 1997. *North American developments in herbicide tolerant crops. Proceedings of BCPC Conference, Weeds 1997, 3, 955-963. British Crop Protection Council*
- Owen, M. D. K.** 2000. *Current use of transgenic herbicide-resistant soybean and corn in the USA. Crop Protection, 19, 765-771.*
- Owen, M. D. K.** 2001. Importance of weed population shifts and herbicide resistance in the Midwest USA corn belt. *Proceedings of BCPC Conference, Weeds 2001, 1, 407-410. British Crop Protection Council.*
- Owen, M.D.K.** 2000. *Current use of transgenic herbicide-resistant soybean and corn in the USA. Crop Protection 19, 765-771)*
- Pain D J and Pienkowski M W (eds).** *Farming and Birds in Europe*. Academic Press, London
- Pallett, D. W., Thurston, M. I., Cortina-Borja, M. Edwards, M. L., Alexander, M., Mitchell, E., Raybould, A. F. and Cooper, J.I.** (2002) The incidence of viruses in wild Brassica rapa ssp. sylvestris in Southern England. *Annals of Applied Biology* **141**: 163-170.
- Palmer, T.P.** (1962) Population structure, breeding system, interspecific hybridisation and allopolyploidy. *Heredity* **17**, 278-283.
- Parker, I.M. & Kareiva, P.** 1996. Assessing the risks of invasion for genetically engineered plants: acceptable evidence and reasonable doubt. *Biological Conservation* **78**: 193-293.
- Pawlowski WP & Somers DA** (1996) Transgene inheritance in plants genetically engineered by microprojectile bombardment. *Mol. Biotechnology* **6**, 17-30.
- Perry J.N.** (2002). Sensitive dependencies and separation distances for GMHT crops. *Proceedings of the Royal Society of London: Biological Sciences* (in press).

- Perry, J. N., Rothery, P., Clark, S. J., Heard, M. S. & Hawes, C.** 2003. Design, analysis and power of the Farm Scale Evaluations of genetically modified herbicide tolerant crops. *Journal of Applied Ecology*, **40**, 17-31.
- Persley GJ** (2000) *Agricultural biotechnology and the poor: promethean science*. Consultative Group on International Agricultural Research.
- Phipps R H, Beever DE & Tingey AP** (2001) Detection of transgenic DNA in bovine milk: results for cows receiving a TMR containing Bt insect protected maize grain (*cry1a(b)*). Abstract presented at the *International Animal Agriculture and Food Science Conference*, Indianapolis USA, July 24-28 2001. Abstract 476.
- Phipps RH & Beever DE** (2002) Detection of transgenic DNA in milk from cows receiving herbicide tolerant (CP4EPSPS) soyabean meal. *Livestock Production Science*, **74**, 269-273.
- Phipps, R. H. & Park, J. R.** 2002. *Environmental benefits of genetically modified crops: global and European perspectives on their ability to reduce pesticide use*. *Animal Feed Science and Technology*, **11**, 1-18.
- Pickersgill, B.** (1981) Biosystematics of crop-weed complexes. *Kulturpflanze* **29**: 377-388.
- Pilate G, Guiney E, Holt K, Petit-Conil M, Lapierre C, Leple JC, Pollet B, Mila I, Webster EA, Marstorp HD, Hopkins DW, Jouanin L, Boerjan W, Schuch W, Cornu D, Halpin C.** 2002. Field and pulping performance of transgenic trees with altered lignification. *Nature Biotechnol.* **20** (6) : 607-612.
- Pilcher, C.D., Obrycki, J.J., Rice, M.E. & Lewis, L.C.** (1997) Preimaginal development, survival and field abundance of insect predators on transgenic *Bacillus thuringiensis* corn. *Biological Control*, **26** (2), 446-454.
- Pilcher, C.D., Obrycki, J.J., Rice, M.E. & Lewis, L.C.** 1997. Preimaginal development, survival and field abundance of insect predators on transgenic *Bacillus thuringiensis* corn. *Biological Control*, **26** (2), 446-454.
- Pimental DS, Raven P.** 2000 *Bt* corn pollen impacts on non-target Lepidoptera: assessment of effects in nature. *Proc. Natl. Acad. Sci. USA* **97**:8198-8199.
- Pinto Y.M. Kok R.A. and Baulcombe D.C.** (1999) Resistance to rice yellow mottle virus (RYMV) in cultivated African rice varieties containing RYMV transgenes. *Nature Biotechnology* **17**: 702-707.
- Pleasants J.M., Hellmich R.L., Dively G.P., Sears M.K., Stanley-Horn D.E., Mattila H.R., Foster J.E., Clark P. and Jones G.D.** (1991). Corn pollen deposition on milkweeds in and near cornfields. *Proc. Natl. Acad. Sci. USA*. **98(21)**:11919-11924.
- Poehlman M.** (1959). *Breeding Field Crops* published by Henry Holt and Company Inc, New York.
- Pollard, E. & Relton, J.** 1970. Hedges. V. A study of the small mammals in hedges and cultivated fields. *Journal of Applied Ecology*, **32**, 899-912.
- Ponsard, S. Gutierrez, A.P. & Mills, M.J.** (2002) Effect of *Bt*-toxin (Cry1Ac) in transgenic cotton on the adult longevity of four heteropteran predators. *Environmental Entomology* **31** (6), 1197-1205.
- Ponsard, S. Gutierrez, A.P. & Mills, M.J.** 2002. Effect of *Bt*-toxin (Cry1Ac) in transgenic cotton on the adult longevity of four heteropteran predators. *Environmental Entomology* **31** (6), 1197-1205.
- Porter T** (1995) *Trust in Numbers*. Princeton University Press, Princeton.
- Potts, G. R.** 1986. *The partridge: pesticides, predation and conservation*. London: Collins.
- Power M** (1997) *The Audit Society: Rituals of Verification*. Oxford University Press.
- Pray C E et al.** 2002. Five years of Bt cotton in China – the benefits continue. *Plant J.* **31(4)**, 423-30
- Preston, C. D., Pearman, D. A. & Dines, T. D (eds).** 2002. *The New Atlas of the British and Irish Flora*. Oxford: Oxford University Press.
- Preston, C. D., Telfor, M. G., Arnold, H. R., Carey, P. D., Cooper, J. M., Dines, T. D., Hill, M. O., Pearman, D. A., Roy, D. B. and Smart, S. M.** 2002. *The Changing Flora of the UK*. London: DEFRA.
- Preston, C.D., Pearman, D.A. and Dines, T.D.** (2002). *New Atlas of the British and Irish Flora*. Oxford University Press, Oxford.

- Pretty J N, Brett C, Gee D, Hine R, Mason C F, Morison J I L, Raven H, Rayment M and van der Bijl G.** 2000. An assessment of the total external costs of UK agriculture. *Agricultural Systems* **65** (2), 113-136
- Pretty J N.** 2001. The rapid emergence of genetically-modified crops in world agriculture. *Environmental Conservation* **28**(3), 248-262
- Pretty J.** 2002. Agri-Culture: Reconnecting People, Land and Nature. *Earthscan*, London 261 pp
- Priestley, R. H Bayles, R. A.** 1982 Evidence that varietal diversification can reduce the spread of cereal diseases. *Journal of the National Institute of Agricultural Botany*. **16**: **1**, 31-38. 14 ref.
- Pysek, P.K. Prach, M. Rejmanek, and M. Wade.** 1995. Plant Invasions: General Aspects and Special Problems. Amsterdam, SPB Academic Publishing.
- Quinn, J. P., Heron, J. K. & McMullan, G.** 1993. Glufosinate tolerance and utilisation by soil and aquatic bacteria. *Biology and the Environment, Proceedings of the Royal Irish Academy*, 93, 181-186.
- Quist, D, and Chapela, I.H.** (2001). Transgenic DNA introgressed into traditional maize landraces in Oaxaca, Mexico. *Nature* **414**: 541-543.
- Racman D.S., McGeachy K., Reavy, B., Strukelj B., Zel J. and Barker H.** (2001) Strong resistance to potato tuber necrotic ringspot disease in potato induced by transformation with coat protein gene sequences from an NTN isolate of potato virus Y. *Annals of Applied Biology* **139**: 269-275.
- Raffensberger C & Tickner J** (1999) (Eds) *Protecting Public Health and the Environment: implementing the Precautionary Principle*. Island Press, Washington.
- Raskin, R., Gluck, E. & Pflug, W.** 1994. The development of fauna and flora on herbicide free agricultural fields. *Natur und Landschaft*, **67**, 7-14.
- Raybould, A. F., Alexander, M. J., Mitchell, E., Thurston, M. I., Pallett, D. W., Hunter, P., Walsh, J. A., Edwards, M-L., Jones, A. M. E., Moyes, C. L., Gray, A. J. and Cooper, J. I.** (2003) The ecology of turnip mosaic virus in populations of wild *Brassica* species. In: *Genes in the environment*. Eds J Beringer, C H J Godfray and R A Hails. Oxford, UK. Blackwell Scientific Press.
- Raybould, A.F. and Gray, A.J.** (1993) Genetically modified crops and hybridisation with wild relatives: a UK perspective. *Journal of Applied Ecology* **30**: 199-219.
- Raybould, A.F., Maskell, L.C., Edwards, M-L., Cooper, J.I. and Gray A.J.** (1999b) The prevalence and spatial distribution of viruses in natural populations of *Brassica oleracea*. *New Phytologist* **141**: 265-275.
- Raybould, A.F., Moyes, C.L., Maskell, L.C., Mogg, R.J., Warman, E.A., Wardlaw, J.C., Elmes, G.W., Edwards, M-L, Cooper, J.I., Clarke, R.T. and Gray, A.J.** (1999a) Predicting the ecological impacts of transgenes for insect and virus resistance in natural and feral populations of *Brassica* species. In: K. Ammann, Y. Jacot, V.
- RCEP** (1998) *Setting Environmental Standards*. Royal Commission on Environmental Pollution, Twenty-first Report, HMSO, London.
- Read, M. A. & Ball, J. G.** 1999. *The control of weeds with glufosinate ammonium in genetically modified crops of forage maize in the UK*. Proceedings of BCPC Conference, Weeds 1999, 847-852. British Crop Protection Council
- Read, M. A. & Ball, J. G.** 1999. Control of weeds in genetically modified crops of winter and spring oilseed rape with glufosinate ammonium in the UK. *Aspects of Applied Biology*, **55**, 27-33.
- Read, M. A. & Bush, M. N.** 1998. Control of weeds in genetically modified sugar beet with glufosinate ammonium in the UK. *Aspects of Applied Biology*, **52**, 401-406.
- Redman A. M., Cipollini D. F., and Schultz J. C.** (2001) Fitness costs of jasmonic acid – induced defence in tomato, *Lycopersicon esculentum*. *Oecologia* **126**: 380-385.
- Reed, G.L., Jensen, A.S., Riebe, J., Head, G. & Duan, J.J.** (2001). Transgenic Bt potato and conventional insecticides for Colorado potato beetle management: comparative efficacy and non-target impacts. *Entomologia Experimentalis et Applicata* **100**, 89-100.
- Reed, G.L., Jensen, A.S., Riebe, J., Head, G. & Duan, J.J.** 2001. Transgenic Bt potato and conventional insecticides for Colorado potato beetle management: comparative efficacy and non-target impacts. *Entomologia Experimentalis et Applicata* **100**, 89-100.



- Renn O** (2003) *The Application of the Precautionary Principle in the European Union*. European Commission, STRATA Programme, Stuttgart.
- Renno, J.F., Winkel, T, Bonnefous, G. and Bezançon, G.** (1997) Experimental study of gene flow between wild and cultivated *Pennisetum glaucum*. *Canadian Journal of Botany* **75**: 925-931.
- Renwick A, Ball A S and Pretty J.** 2002. Economic, biological and policy constraints on the adoption of carbon farming in temperate regions. *Philosophical Transactions of the Royal Society Series A* **360**, 1721-1740
- Reus, J. A. W. A & Leendertse.** 2000. The environmental yardstick for pesticides. *Crop Protection*. <http://www.clm.nl/>
- Riddick, E.W., Dively, G. & Barbosa, P.** (2000) Season-long abundance of generalist predators in transgenic versus nontransgenic potato fields. *Journal of Entomological Science* **35** (4), 349-359.
- Riddick, E.W., Dively, G. & Barbosa, P.** 2000. Season-long abundance of generalist predators in transgenic versus nontransgenic potato fields. *Journal of Entomological Science* **35** (4), 349-359.
- Rieger, M.A., Lamond, M., Preston, C., Powles, S.B. and Roush, R.T.** (2002) Pollen-mediated movement of herbicide resistance between commercial canola fields. *Science* **296**: 2386-2388.
- Robertson, G. P., Paul, E. A. & Harwood, R. R.** 2000. *Greenhouse gases in intensive agriculture: contributions of individual gases to the radiative forcing of the atmosphere*. *Science*, **289**, 1922-1925.
- Robinson R A and Sutherland W J.** 2002. Post-war changes in arable farming and biodiversity in Great Britain. *J. Appl. Ecology* **39**, 157-176
- Robinson, R. A.** 1997. The ecology and conservation of seed-eating birds in farmland. PhD thesis. Norwich: University of East Anglia.
- Robinson, R.A. & Sutherland, W.J.** 2002. Changes in arable farming and biodiversity in Great Britain. *Journal of Applied Ecology* **39**, 157-176
- Romanowski G., Lorenz M.G. and Wackernagel W.** (1993). Use of polymerase chain-reaction and electroporation of *Escherichia-coli* to monitor the persistence of extracellular plasmid DNA introduced into natural soils. *Applied and Environmental Microbiology*. **59** (10): 3438-3446.
- Rommens, C. M. , Sameron, J. M., Oldroyd, G. E., Staskawicz, S. J.** 1995. Intergeneric transfer and functional expression of the tomato disease resistance gene *Pto*. *Plant Cell* **7**: 1537-1544
- Royal Society** (2002) *Genetically modified plants for food use and human health - an update*. The Royal Society. Policy Document 4/02. [http://www.royalsoc.ac.uk/policy/cur\\_gm.htm](http://www.royalsoc.ac.uk/policy/cur_gm.htm)
- Royal Society of Canada** (2001) *Report of the Expert Panel on the Future of Food Biotechnology*, C Brunk, B Ellis, et al. Royal Society of Canada, Ottawa.
- Royal Society, USA National Academy of Sciences, Brazilian Academy of Sciences, Chinese Academy of Sciences, Indian National Academy of Sciences, Mexican Academy of Sciences, and Third World Academy of Sciences.** 2000. *Transgenic Plants and World Agriculture*. Royal Society, London
- Rubio T., Borja M., Scholthof H.B. and Jackson A.O.** (1999) Recombination with host transgenes and effects on virus evolution: an overview and opinion. *Molecular Plant-Microbe Interactions* **12**: 87-92.
- Ruiz, P., Novillo, C., Fernandez-Anero, J. & Campos, M.** 2001. Soil arthropods in glyphosate tolerant and isogenic maize lines under different soil / weed management practices. *Proceedings of the World Congress on Conservation Agriculture 2001*, 1, 3-7.
- Sala F et al** (2000) Somaclonal variation in transgenic plants. *Acta. Hortic.* 411-19.
- Salyers AA & Shoemaker NB** (1995) Conjugative transposons - the force behind the spread of antibiotic-resistance genes among *Bacteroides* clinical isolates. *Anaerobe*, **1**(3), 143-150.
- Salyers AA & Shoemaker NB** (1996) Resistance gene transfer in anaerobes: new insights, new problems. *Clinical Infectious Diseases*, **23**, S36-S43, Suppl. 1.
- Sand P** (2000) The Precautionary Principle: A European Perspective, *Human and Ecological Risk Assessment*, **6**(3), 445-458.
- SAP** (2000a) *A set of scientific issues being considered by the Environmental Protection Agency regarding: food allergenicity of Cry9C endotoxin and other non-digestible proteins*. REPORT FIFRA Scientific Advisory Panel Meeting. SAP Report No. 2000-01A. June 29 2000, Virginia.

- SAP** (2000b) *A set of scientific issues being considered by the Environmental Protection Agency regarding: assessment of scientific information concerning StarLink™ corn*. REPORT FIFRA Scientific Advisory Panel Meeting. SAP Report No. 2000-06. November 28 2000, Rosslyn.
- Saxena, D & Stotzky, G.** (2001a) Bt corn has a higher lignin content than non-Bt corn. *American Journal of Botany* **88**(9): 1704-1706.
- Saxena, D & Stotzky, G.** 2001. Bt corn has a higher lignin content than non-Bt corn. *American Journal of Botany*, **88**, 1704-1706.
- Saxena, D. & Stotzky, G.** (2000). Insecticidal toxin from *Bacillus thuringiensis* is released from roots of transgenic Bt corn in vitro and in situ. *Fems Microbiology Ecology* **33**, 35-39.
- Saxena, D. & Stotzky, G.** (2001b). *Bacillus thuringiensis* (Bt) toxin released from root exudates and biomass of Bt corn has no apparent effect on earthworms, nematodes, protozoa, bacteria and fungi in soil. *Soil Biology and Biochemistry* **33**, 1225-1230.
- Saxena, D. & Stotzky, G.** 2000. Insecticidal toxin from *Bacillus thuringiensis* is released from roots of transgenic Bt corn in vitro and in situ. *Ems Microbiology Ecology* **33**, 35-39.
- Saxena, D. & Stotzky, G.** 2001. *Bacillus thuringiensis* (Bt) toxin released from root exudates and biomass of Bt corn has no apparent effect on earthworms, nematodes, protozoa, bacteria and fungi in soil. *Soil Biology and Biochemistry* **33**, 1225-1230.
- Saxena, D., Flores, S. & Stotzky, G.** (1999). Transgenic plants – insecticidal toxin in root exudates from Bt corn. *Nature* **402**, 480.
- Saxena, D., Flores, S. & Stotzky, G.** (2002). Bt toxin is released in root exudates from 12 transgenic corn hybrids representing three transformation events. *Soil Biology and Biochemistry* **34** (1), 133-137.
- Saxena, D., Flores, S. & Stotzky, G.** 1999. Transgenic plants – insecticidal toxin in root exudates from Bt corn. *Nature* **402**, 480.
- Saxena, D., Flores, S. & Stotzky, G.** 2002. Bt toxin is released in root exudates from 12 transgenic corn hybrids representing three transformation events. *Soil Biology and Biochemistry* **34** (1), 133-137.
- SBC** (2001) GM Food Crops and Application of Substantial Equivalence in the European Union. Schenkelaars Biotechnology Consultancy, Leiden.  
<http://www.sbcbiotech.nl/SBC%20study%20Substantial%20Equivalence%20June%202001%20Publication.doc>
- SCF** (1997) *Recommendations concerning the scientific aspects of information necessary to support applications for placing on the market of novel foods and novel food ingredients*. Part I. Opinion expressed on 7 June 1996. EU Scientific Committee for Food (39<sup>th</sup> Series).
- Schlüter K, Fütterer J, Potrykus I** (1995) “Horizontal” gene transfer from a transgenic potato line to a bacterial pathogen (*Erwinia chrysanthemi*) occurs – if at all – at an extremely low frequency. *Biotechnology* **13**:1094–1098.
- Schoelz J.E. and Wintermantel W.M.** (1993) Expansion of viral host range through complementation and recombination in transgenic plants. *The Plant Cell* **5**: 1669-1679.
- Schouten G J, van Luenen HGAM, Verra NCV, Valerio D & Plasterk RHA.** (1998) Transposon Tc1 of the nematode *C.elegans* jumps in human cells. *Nucleic Acids Research*, **26**, 3013–3017.
- Schubbert R, Hohlweg U, Renz D & Doerfler W** (1998) On the fate of orally ingested foreign DNA in mice: chromosomal association and placental transmission to the fetus. *Molecular and General Genetics*, **259**, 569-576.
- Schubbert R, Lettmann C & Doerfler W** (1994) Ingested foreign (phage M13) DNA survives transiently in the gastrointestinal tract and enters the bloodstream of mice. *Molecular and General Genetics*, **242**, 495-504.
- Schubbert R, Renz D, Schmitz B & Doerfler W** (1997) Foreign (M13) DNA ingested by mice reaches peripheral leukocytes, spleen, and liver via the intestinal wall mucosa and can be covalently linked to mouse DNA. *Proceedings of the National Academy of Science USA*, **94**, 961-966.
- Schubert D** (2002) A different perspective on GM food. *Nature Biotech.* **20** 969.
- Schuler, T, H; Denholm, I; Jouanin, L; Clark, S, J; Clark, A, J; Poppy, G, M.** (2001) Population Scale laboratory studies of the effect of transgenic plants on non-target insects. *Molecular Ecology* **10**, 1845-1853

- Schuler, T. H.; Denholm, I.; Jouanin, L.; Clark, S. J.; Clark, A. J.; Poppy, G. M.** 2001. Population Scale laboratory studies of the effect of transgenic plants on non-target insects. *Molecular Ecology* **10**, 1845-1853
- Schuler, T.H., Potting, R.P.J., Denholm, I. & Poppy, G.M.** (1999) Parasitoid behaviour and Bt plants. *Nature*, **400**, 26 August 1999, 825.
- Schuler, T.H., Potting, R.P.J., Denholm, I. & Poppy, G.M.** 1999. Parasitoid behaviour and Bt plants. *Nature*, **400**, 26 August 1999, 825.
- Sears, M. K., Hellmich, R. L., Stanley-Horn, D. E., Oberhauser, K. S., Pleasants, J. M., Mattila, H. R., Siegfried, G. P.** (2001) Impact of bt corn pollen on monarch butterfly populations: a risk assessment. *Proceedings of the National Academy of Sciences*. **98** (21), 11937-11942.
- Sears, M. K., Hellmich, R. L., Stanley-Horn, D. E., Oberhauser, K. S., Pleasants, J. M., Mattila, H. R., Siegfried, G. P.** 2001. Impact of bt corn pollen on monarch butterfly populations: a risk assessment. *Proceedings of the National Academy of Sciences*. **98** (21), 11937-11942.
- Selgrade MJK, Kimber I, Goldman L & Germolec DR** (2003) Assessment of allergenic potential of genetically modified foods: an agenda for future research. *Environmental Health Perspectives*, **111**(8), 1140-1141.
- Senior, I.J. and Dale, P.J.** (1999) Molecular aspects of multiple transgenes and gene flow to crops and wild relatives. In: *BCPC Symposium Proceedings* **72**, pp 225-232. British Crop Protection Council, Farnham.
- Senior, I.J. and Dale, P.J.** (2002) Herbicide-tolerant crops in agriculture: oilseed rape as a case study. *Plant Breeding*, **121**: 97-107.
- Senior, I.J., Moyes, C. and Dale, P.J.** (2002) Herbicide sensitivity of transgenic multiple herbicide-tolerant oilseed rape. *Pest Management Science* **58**: 405-412.
- Sharp GL, Martin JM, Lanning SP, Blake NK, Brey CW, Sivamani E, Qu R, Talbert LE.** (2000) Resistance to wheat streak mosaic virus in transgenic wheat expressing the viral replicase (Nib) gene. *Molecular Breeding* **6**: 469-477.
- Sharp, G.L, Martin, J. M., Lanning, S. P., Blake N. K., Brey, C. W., Sivamani E., Qu, R. Talbert, L. E.** (2002) Field evaluation of transgenic and classical sources of Wheat streak mosaic virus resistance. *Crop Science* **42** (1): 105-110.
- Shewmaker CK, Sheehy JA, Daley M, Colburn S & Ke DY** (1999) Seed-specific overexpression of phytoene synthase: increase in carotenoids and other metabolic effects. *The Plant Journal*, **20**(4), 401-412.
- Sidhu RS, Hammond BG, Fuchs RL, Mutz J, Holden LR, George B & Olson T** (2000) Glyphosate tolerant corn: the composition and feeding value of grain from glyphosate tolerant corn is equivalent to that of conventional corn (*Zea mays* L). *J. Agric. Food Chem.* **48**, 2305-12.
- Simberloff, D., D. C. Schmitz, and T. C. Brown.** 1997. Strangers in Paradise: Impact and Management of nonindigenous Species in Florida. Washington DC, Island Press.
- Simonsen and G. Kjellsson** (Eds) *Methods of Risk Assessment of Transgenic Plants* III Ecological risks and prospects of transgenic plants. Pp 3-15. Birkhauser Verlag, Basel.
- Simonsen, L.** (1990). Dynamics of plasmid transfer on surfaces. *Journal of General Microbiology* **136**: 1001-1007.
- Sims SR.** 1995 *Bacillus thuringiensis* var *kurstaki* [CryIA(c)] protein expressed in transgenic cotton: Effects on beneficial and other non-target insect. *Southwestern Entomologist* **20**:493-500
- Siriwardena G M, Ballie S R, Buckland G T, Fewster R M, Marchant J H and Wilson J D.** 1998. Trends in the abundance of farmland birds: a quantitative comparison of smoothed Common Birds Census indices. *J. Applied. Ecology* **35**, 24-43
- Siriwardena, G. M., Baillie, S. R. & Wilson, J. D.** 1998. Variation in the survival rates of some British passerines with respect to their population trends on farmland. *Bird Study*, **45**, 276-292.
- Siriwardena, G. M., Baillie, S. R., Crick, H. Q. P. & Wilson, J. D.** 2000. The importance of variation in the breeding performance of seed eating birds in determining their population trends on farmland. *Journal of Applied Ecology*, **37**, 128-148.
- Siriwardena, G. M., Baillie, S.R., Buckland, S. T., Fewster, R. M., Marchant, J. H. & Wilson, J. D.** 1998. Trends in abundance of farmland birds: a quantitative comparison of smoothed Common Birds Census indices. *Journal of Applied Ecology*, **35**, 24-43.

- Sivamani E., Brey C.W., Talbert L.E., Young M.A., Dyer W.E., Kaniewski W.K. and Qu R.** (2002) Resistance to wheat streak mosaic virus in transgenic wheat engineered with the viral coat protein gene. *Transgenic Research* **11**: 31-41.
- Sivamani, E., Brey C. W., Dyer W. E., Talbert L. E. and Qu R.** (2000) Resistance to wheat streak mosaic virus in transgenic wheat expressing the viral replicase (NIb) gene. *Molecular Breeding* **6** (5): 469-477.
- Sjoblad RD, McClintock T & Engler R** (1992) Toxicological considerations for protein components of biological pesticide products. *Regulatory Toxicology & Pharmacology*, **15**, 3-9.
- Small, E.** (1984) Hybridisation in the domesticated-weed-wild complex. In: W.F. Grant (Ed) *Plant Biosystematics* pp 195-210. Academic Press. Toronto.
- Smart, S. M., Firbank, L. G., Bunce, R. G. H. & Watkins, J. W.** 2000. Quantifying changes in abundance of food plants for butterfly larvae and farmland birds. *Journal of Applied Ecology*, **37**, 398-414.
- Smartt J & Simmonds NW** (1995) *Evolution of crop plants*. Longman Scientific and Technical. ISBN 0 582 08643 4.
- Smidansky ED, Clancy M, Meyer FD, Lanning SP, Blake NK, Talbert LE, Giroux MJ.** 2002. Enhanced ADP-glucose pyrophosphorylase activity in wheat endosperm increases seed yield. *Proc Natl Acad Sci USA*. **99**: 1724-1729.
- Smith, C., Reynolds, J.D. & Sutherland, W.J.** 2000. Population consequences of reproductive decisions. *Proceedings of the Royal Society* 267, 1327-1334
- Snape, J.W., Angus, W. J., Parker, B., Leckie, D.** 1987 The chromosomal locations in wheat of genes conferring differential response to the wild oat herbicide, difenzoquat. *J Ag Sci* **108**: 543-548
- Snow, A.A., Andersen, B. and Jorgensen, R.B.** (1999) Costs of transgenic herbicide resistance introgressed from *Brassica napus* into weedy *Brassica rapa*. *Molecular Ecology* **8**: 605-615.
- Snow, A.A., Pilson, D., Riesberg, L.H., Paulsen, M.J., Pleskac, N., Reagon, M.R., Wolf, D.E. and Selbo, S.M.** (2003) A Bt transgene reduces herbivory and enhances fecundity in wild sunflowers. *Ecological Applications* **13**: 279-286.
- Song W-Y, Wang G-L, Chen L-L, Kim H-S, Pi L-YT, Holsten T, Gardner J, Wang B, Zhai W-X, Zhu L-H, Fauquet C, Ronald P.** 1995 A receptor kinase-like protein encoded by the rice disease resistance gene, *Xa21*. *Science* **270**: 1804-1806
- SOT** (2003) The safety of genetically modified foods produced through biotechnology. *Toxicological Sciences*, **71** 2-8.
- Sotherton, N. W.** 1991. Conservation headlands: a practical combination of intensive cereal farming and conservation. In: Firbank, L. G., Carter, N., Darbyshire, J. F. & Potts, G. R. (eds) *The ecology of temperate cereal fields*, pp 373-397. Oxford: Blackwell Scientific Publications.
- Soukup, J., Holec, J., Vejl, P., Skupinova, S., Sedlak, P.** (2002) Diversity and distribution of weed beet in the Czech Republic. *Journal of Plant Diseases and Protection, Special Issue XVIII*, 67-74
- Souza J., Manoel T. and Gonsalves D.** (1999) Genetic engineering resistance to plant virus diseases, an effort to control Papaya ringspot virus in Brazil. *Fitopatologia Brasileira* **24** (4): 485-502.
- Spaink H. P., Okker R.J.H., Wijffelman C.A et al.,** (1987). Promoters In The Nodulation Region Of The Rhizobium-Leguminosarum Sym Plasmid PRL1JI. *Plant Mol Biol* **9**(1): 27-39.
- Spencer L.J. and Snow A.A.** (2001) Fecundity of transgenic wild-crop hybrids of *Cucurbita pepo* (*Cucurbitaceae*): implications for crop-to-wild gene flow. *Heredity*. **86**(6):694-702.
- Squire G.R., Crawford J.W. Ramsay, G. and Thomson C.** (1999) Gene flow at the landscape level. In *British Crop Protection Council Symposium Proceedings* no **72**. Gene flow and Agriculture - Relevance for Transgenic Crops 57 – 64.
- Squire, G. R., Rodgers, S. & Wright, G.** 2000. Community-scale seedbank responses to less intense rotation and reduced herbicide input at three sites. *Annals of Applied Biology*, **136**, 47-57.
- Squire, G.R., Crawford, J.W., Ramsay, G. and Thomson, C.** (1999) Gene flow at the landscape level. *BCPC Symposium Proceedings* No. **72**, pp 57-65. British Crop Protection Council, Farnham.
- SSC (2003)** *Guidance document for the risk assessment of genetically modified plants and derived food and feed*. European Union Scientific Steering Committee, Joint Working Group on Novel Foods and GMOs. March 6-7 2003.

- Stace, C.** 1997. *New Flora of the British Isles*. 2nd Edition. Cambridge University Press, Cambridge
- Stace, C.** 2002 “Knowing what we have: the ever-changing inventory” *Trans Suffolk Natural History Society* **38**: 23-36.
- Stace, C.A.** (1991) *New Flora of the British Isles*. Cambridge University Press. Cambridge.
- Stanhope MJ, Lupas A, Italia MJ, Koretke KK, Volker C & Brown JR** (2001) Phylogenetic analyses do not support horizontal gene transfers from bacteria to vertebrates. *Nature*, **411**, 940–944.
- Stanley-Horn, D.E., Dively, G.P., Hellmich, R.L., Mattila, H.R., Sears, M.K., Rose, R., Jesse, L.C.H., Losey, J.E., Obrycki, J.J. & Lewis, L.** (2001) Assessing the impact of Cry1Ab-expressing corn pollen on monarch butterfly larvae in field studies. *Proceedings of the National Academy of Sciences*, **98** (21), 11931-11936.
- Stanley-Horn, D.E., Dively, G.P., Hellmich, R.L., Mattila, H.R., Sears, M.K., Rose, R., Jesse, L.C.H., Losey, J.E., Obrycki, J.J. & Lewis, L.** 2001. Assessing the impact of Cry1Ab-expressing corn pollen on monarch butterfly larvae in field studies. *Proceedings of the National Academy of Sciences*, **98** (21), 11931-11936.
- Stanley-Horn, D.E., Dively, G.P., Hellmich, R.L., Mattila, H.R., Sears, M.K., Rose, R., Jesse, L.C.H., Losey, J.E., Obrycki, J.J. & Lewis, L.** 2001. Assessing the impact of Cry1Ab-expressing corn pollen on monarch butterfly larvae in field studies. *Proceedings of the National Academy of Sciences*, **98**, 11931-11936.
- Stephens, P.A., Frey-Roos, F., Arnold, W. & Sutherland, W.J.** (2002a) Model complexity and population predictions: the alpine marmot as a case study. *Journal of Animal Ecology*. **71**, 343-361
- Stephens, P.A., Frey-Roos, F., Arnold, W., & Sutherland, W.J.** 2002b. Sustainable exploitation of social species: a test and comparison of models. *Journal of Applied Ecology* **39**, 629-642.
- Stewart C.N. and Prakash C.S.** (1998) Chloroplast-transgenic plants are not a gene flow panacea. *Nature Biotechnology* **16**: 401.
- Stewart C.N., Jr.** (1999). Insecticidal transgenes into nature: gene flow, ecological effects, relevancy and monitoring. In P J W Lutman, Ed. *Gene Flow and Agriculture: Relevance for Transgenic Crops*. BCPC Proceedings No. 72.
- Stewart C.N., Jr.** 1999. Insecticidal transgenes into nature: gene flow, ecological effects, relevancy and monitoring. In P J W Lutman, Ed. *Gene Flow and Agriculture: Relevance for Transgenic Crops*. BCPC Proceedings No. 72.
- Stewart, A.N., All, J.N., Raymer, P.L. and Ramachandran, S.** (1997) Increased fitness of transgenic insecticidal rapeseed under insect selection pressure. *Molecular Ecology*, **6**: 773-779.
- Stillman, R.A., Goss-Custard, J.D., West, A.D., Durell, S.E.A. le vit de, Cardow, R.W.G., McGroarty, S. & Clarke, R.T.** 2000. Predicting mortality in novel environments: tests and sensitivity of a behaviour-based model. *Journal of Applied Ecology* **38**, 857-868.
- Stirling A** (2003) *Risk, Uncertainty and Precaution: Some instrumental implications from the social sciences*. In: F Berkhout, M Leach I Scoones (Eds), *Negotiating Environmental Change*, Edward Elgar.
- Strandberg, B. & Pedersen, M. B.** 2002. Biodiversity in glyphosate tolerant fodder beet fields - timing of herbicide application. Silkeborg: National Environmental Research Institute.
- Straub M, Hertel C & Hammes WP** (1999) The fate of recombinant DNA in thermally treated fermented sausages. *European Food Research and Technology*, **210**, 62-67.
- Stuiver MH, Custers JH.** 2001. Engineering disease resistance in plants. *Nature* **411**: 865-868.
- Sutherland, W.J. & Watkinson, A.R.** 2001. Policy making within ecological uncertainty: lessons from badgers and GM crops. *Trends in Ecology and Evolution* **16**, 261-263.
- Sweet, J. B. & Shepperson, R.** 1998. The impact of genetically modified herbicide tolerant oilseed rape in the UK. *Acta Hort*, **459**, 225-234.
- Tabashnik BE, Patin AL, Dennehy TJ, Liu Y-B, Carrière Y, Sims MA, Antilla L.** 2002. Frequency of resistance to *Bacillus thuringiensis* in field populations of pink bollworm. *Proc. Natl. Acad. Sci.*, **97**:12980-12984.
- Tada Y, Nakase M, Adachi T, Nakamura R, Shimada H, Takahashi M, Fujimura T & Matsuda T** (1996) Reduction of 14-16 kDa allergenic proteins in transgenic rice plants by antisense gene. *FEBS Letters*, **391**(3), 341-345.

- Takayam S. and Isogai A.** (2003). Molecular mechanisms of self-recognition in Brassica self-incompatibility. *J. Exp. Botany*. **54** (380): 149-156.
- Talbert L.E.** (2002) Field evaluation of transgenic and classical sources of wheat streak mosaic virus resistance. *Crop Science* **42**: 105-110.
- Taliansky M.** (2001) Evidence for RNA-mediated defence effects on the accumulation of potato leafroll virus. *Journal of General Virology* **82**: 3099-3106.
- Tapp, H. & Stotzky, G.** (1998). Persistence of the insecticidal toxin from *Bacillus thuringiensis* subsp. *kurstaki* in soil. *Soil Biology and Biochemistry* **30**, 471-476.
- Tapp, H. & Stotzky, G.** 1998. Persistence of the insecticidal toxin from *Bacillus thuringiensis* subsp. *kurstaki* in soil. *Soil Biology and Biochemistry* **30**, 471-476.
- Tepfer M.** (2002) Risk assessment of virus-resistant transgenic plants. *Annual Review of Phytopathology* **40**: 467-491.
- Teycheney P.Y., Aaziz R., Dinant S., Salanki K., Tourneur C., Balazs E., Jacquemond M. and Tepfer M.** (2000) Synthesis of (-)-strand RNA from the 3' untranslated region of plant viral genomes expressed in transgenic plants upon infection with related viruses. *Journal of General Virology* **81**: 1121-1126.
- The Arabidopsis Genome Initiative.** 2000. Analysis of the genome sequence of the flowering plant *Arabidopsis thaliana*. *Nature* **408**: 796-815.
- Thill, D.C., Mallory-Smith, C.A, Saari, L.L., Cotterman, J.C 7 Primiana, M.M.** 1991 Sulfonyleurea herbicide resistant weeds: discovery, distribution, biology, mechanism and management. In: *Herbicide Resistance in Weeds and Crops*, ed. By J.C. Caseley, G.W. Cussans and R.K. Atkin, pp. 115-128. Butterworth –Heinemann, Oxford
- Thilmony et al.** 1995 *Plant Cell* **7**: 1995. pp1529-1536
- Thomas P.E., Hassan S., Kaniewski W. K., Lawson E. C. and Zalewski J. C.** (1998) A search for evidence of virus/transgene interactions in potatoes transformed with the potato leafroll virus replicase and coat protein genes. *Molecular Breeding* **4**: 407-417.
- Thomas P.E., Lawson E.C., Zalewski J.C., Reed G.L. and Kaniewski W.K.** (2000) Extreme resistance to potato leafroll virus in potato cv. Russet Burbank mediated by the viral replicase gene. *Virus Research* **71**: 49-62.
- Thurston M. I., Pallett D. W., Cortina-Borja M., Edwards M-L, Raybould A. F. and Cooper, J. I.** (2001) The incidence of viruses in wild Brassica nigra in Dorset (UK). *Annals of Applied Biology* **139**: 277-284.
- Tolstrup K., Andersen S.V., Boelt B., Buus M., Gylling M., Holm P.B., Kjellsson G., Pedersen S., Østergård H. and Mikkelsen S.A.** (2003). Working Group Report on the co-existence of genetically modified crops with conventional and organic crops.
- Topping JF & Lindsey K.** (1995) Insertional mutagenesis and promoter trapping in plants for the isolation of genes and the study of development. *Transgenic Research*, **4** (5), 291-305.
- Townsend R** (2000) Testing foods derived through biotechnology for potential allergens. In: Proceedings of British Crop Protection Council: Predicting field performance in Crop Protection (Copping LG ed). British Crop Protection Council. Symposium proceedings **74**, 185-191.
- Treasury** (1996) *Report on DoE Methodology for Setting Safety Standards*. Interdepartmental Liaison Group on Risk Assessment, ILGRA, HM Treasury.
- Treu R. and Emberlin J.** (2000). Pollen dispersal in the crops maize, oil seed rape, potatoes, sugar beet and wheat – evidence from publications. A report for the Soil Association from the National Pollen Research Institute.
- UK Biodiversity Group.** 1995. *Biodiversity: The UK Steering Group Report. Volume 1: Meeting the Rio challenge*. Biodiversity Steering Group. HMSO : London
- UK Biodiversity Group.** 1998. Tranche 2 Action Plans. Volume II – Terrestrial and Freshwater Habitats. English Nature, Peterborough
- UK Biodiversity Group.** 1999. Tranche 2 Action Plans. Vol III - plants and fungi. Vol IV - invertebrates. English Nature, Peterborough
- UNCED** (1992) *Final Declaration of the UN Conference on Environment and Development*. Principle 15, Rio de Janeiro.
- Unwin et al** (2003) In press.

- Urwin, P., Troth, K., Zubko, E., Atkinson H.** 2001 *Molecular Breeding* **8**: 95–101, 2001.
- USDA** (2000) C Woteki, *The Role of Precaution in Food Safety Decisions*. Remarks prepared for Under Secretary for Food Safety, Food Safety and Inspection Service, US Department of Agriculture, Washington.
- Valenta H, Daenicke S, Flachowsky G & Böhme T** (2001) Comparative studies on concentration of the Fusarium mycotoxins deoxynivalenol and zearalenone in kernels of transgenic Bt maize hybrids and non transgenic hybrids. *Proc. Nutr. Soc. Physiol.* **10**, 164.
- Van Dijk H., Bondry P., McCombie H. and Vernet P.** (1997) Flowering time in wild beet (*Beta vulgaris ssp maritima*) along a latitudinal cline. *Acta Oecologia* **18**: 47-60.
- Van Elsas J.D., Turner S. and Bailey M.J.** (2003). Horizontal gene transfer in the phytosphere. *New Phytologist* **157** (3): 525-537.
- van Zwaneberg P & Stirling A** (2003) Risk and Precaution in the US and Europe, *Yearbook of European Environmental Law*, **4**, Oxford University Press.
- Van Valen, L.** 1973. A new evolutionary law. *Evol. Theory* **1**: 1-30.
- VanGessel, M. J.** 2001 Glyphosate-resistant horseweed from Delaware. *Weed Science*, **49**, 703-705.
- Varrelmann M., Palkovics L. and Maiss E.** (2000) Transgenic or plant expression vector-mediated recombination of plum pox virus. *Journal of Virology* **74**: 7462-7469.
- Vaucheret H., Beclin C. and Fagard M.** (2001) Post-transcriptional gene silencing in plants. *Journal of Cell Science* **114**: 3083-3091.
- Veltman, C. J., S. Nee, and M. J. Crawley.** 1996. "Correlates of introduction success in exotic New Zealand birds." *American Naturalist* **147**(4): 542-557.
- Vierheilig, H., Alt, M., Lange, J. Gut-Rella, M., Wiemken, A & Boller, T.** (1995). Colonization of transgenic tobacco constitutively expressing pathogenesis-related proteins by the vesicular-arbuscular mycorrhizal fungus *Glomus mosseae*. *Applied Environmental Microbiology* **61**, 3031-3034.
- Vierheilig, H., Alt, M., Lange, j. Gut-Rella, M., Wiemken, A & Boller, T.** 1995. Colonization of transgenic tobacco constitutively expressing pathogenesis-related proteins by the vesicular-arbuscular mycorrhizal fungus *Glomus mosseae*. *Applied Environmental Microbiology* **61**, 3031-3034.
- Voinnet O., Pinto Y.M. and Baulcombe D.C.** (1999) Suppression of gene silencing: a general strategy used by diverse DNA and RNA viruses of plants. *Proceedings of the National Academy of Sciences USA* **96**: 14147-14152.
- Vulic M., Dionisio F., Taddei F., et al.** (1999). Molecular keys to speciation: DNA polymorphism and the control of genetic exchange in enterobacteria. *PNAS USA*. **94**(18): 9763-9767.
- Vulic M., Lenski R.E. and Radman M.** (1999). Mutation, recombination, and incipient speciation of bacteria in the laboratory. *Proc Natl Acad Sci U S A*. **96**(13): 7348-7351
- Wandeler, H., Bahylova, J & Nentwig, W.** (2002). Consumption of two Bt and six non-Bt corn varieties by the woodlouse *Porcellio scaber*. *Basic and Applied Ecology* **3** (4), 357-365.
- Wandeler, H., Bahylova, J & Nentwig, W.** 2002. Consumption of two Bt and six non-Bt corn varieties by the woodlouse *Porcellio scaber*. *Basic and Applied Ecology* **3**(4), 357-365.
- Wang G et al** (1996) Poplar (*Populus nigra* L.) plants transformed with a *Bacillus thuringiensis* toxin gene: insecticidal activity and genomic Analysis. *Transgenic Res.* **5**, 289-301.
- Wang M-B., Abbott D. C. and Waterhouse P. M.** (2000). A single copy of a virus-derived transgene encoding hairpin RNA gives immunity to barley yellow dwarf virus. *Molecular Plant Pathology* **1**: 347-356.
- Wang, X. Eggenberger A. L., Nutter F. W. and Hill J. H.** (2001). Pathogen-derived transgenic resistance to soybean mosaic virus in soybean. *Molecular Breeding* **8**:119-127.
- Wang, Z. M., Devos, K. M., Liu, C. J., Wang, R. Q., Gale, M. D.** 1998 Construction of RFLP-based maps of foxtail millet, *Setaria italica* (L.) P.Beauv. *Theor Appl Genet* **96**: 31-36
- Wang,Z., Hopkins.A., Mian. R.** 2001. Forage and turf grass biotechnology. *Critical Reviews in Plant Sciences* **20**:573-619.
- Warburton, D. B. & Klimstra, W. D.** 1984. Wildlife use of no-till and conventionally tilled corn fields. *Journal of Soil and Water Conservation*, **39**, 327-330.

- Warren, J.M., Raybould, A.F., Ball, T., Gray, A.J. and Hayward M.D.** (1998) Genetic structure in the perennial grasses *Lolium perenne* and *Agrostis curtisii*. *Heredity* **81**: 556-562.
- Warwick, S.I., Sumard, M.-J., Légère, A., Beckie, H.J., Zhu, B., Mason, P., Seguin-Swartz, G., and Stewart, C.N.** (2003). Hybridization between transgenic *Brassica napus* L. and its wild relatives: *Brassica rapa* L., *Raphanus raphanistrum* L., *Sinapis arvensis* L., and *Erucastrum gallicum* (Willd.) O.E. Schulz. *Theor Appl Genet.* (in press).
- Watkinson A R, Freckleton R P, Robonson R A and Sutherland W J.** 2000. Predicting biodiversity responses to GM-herbicide-tolerant crops. *Science* **289**, 1554-1556
- Wehrmann A, van Vliet A., Opsomer C, Botterman J & Schulz A** (1996) The similarities of *bar* and *pat* gene products make them equally applicable for plant engineers. *Nature Biotech*, **14**, 1274-1278.
- Weizel D, Nilsson O.** 1995. A developmental switch sufficient for flower initiation in diverse plants. *Nature* **377** (6549) : 495-500.
- Wevers, J. D. A.** 1998. Agronomic and environmental aspects of herbicide-resistant sugar beet in the Netherlands. *Aspects of Applied Biology*, **52**, 393-399.
- Whitman, S. McCormick, S. Baker, B.** 1996 The N of tobacco confers resistance to tobacco mosaic virus in transgenic tomato. *Proc Natl Acad Sci USA* **93**: 8776-8781
- Whitton, J.D., Wolf, D.E., Arias, D.M., Snow, A.A. and Rieseberg, L.M** (1997) The persistence of cultivar alleles in wild populations of sunflowers five generations after hybridisation. *Theoretical and Applied Genetics* (i.e. beyond the very low numbers of F<sub>1</sub> hybrids), 33-40.
- Widmer F., Seidler R.J., Donegan K.K. and Reed G.L.** (1997). Quantification of transgenic plant marker gene persistence in the field . *Molecular Ecology* **6** (1): 1-7.
- Wilkinson, M.J., Davenport, J., Charters, Y.M., Jones, A.E., Allainguillaume, J., Butler, H.T., Mason, D.C. and Raybould, A.F.** (2000) A direct regional scale estimate of transgene movement from GM oilseed rape to its wild progenitors. *Molecular Ecology* **9**: 983-991.
- Wilkinson, M.J., Sweet, J. and Poppy, G.M.** (2003) Risk assessment of GM plants: avoiding gridwork? *Trends in Plant Science* in press.
- Williams M.E.** (1995) Genetic Control of pollination control. *Trends in Biotechnology*.**13**: 344-349.
- Williams, P. H.** 1986. Environmental change and the distributions of British bumble bees. *Bee World*, **67**, 50-61.
- Williamson, M.** 1993. "Invaders, Weeds and the Risk from Genetically Manipulated Organisms." *Experientia* **49(3)**: 219-224.
- Wilson J. D.** 2001. Weeds as a food resource for farmland birds: what where and how many should we leave? Proceedings of BCPC Conference, Weeds 2001, 1, 391-398. British Crop Protection Council.
- Wilson P and King M.** 2003. Arable Plants: A Field Guide. *English Nature, Peterborough*
- Wilson T.M.A.** (1993) Strategies to protect crop plants against viruses: pathogen-derived resistance blossoms. *Proc. Nat. Acad. Sci. USA* **90**: 3134-3141.
- Wilson, J. D., Morris, A. J., Arroyo, B., Clark, S. C. & Bradbury, R. B.** 1999. A review of the abundance and diversity of invertebrate and plant foods of granivorous birds in northern Europe in relation to agriculture. *Agriculture, Ecosystems and Environment*, **75**, 13-30.
- Wilson, P. & King, M. (eds)** 2000. Fields of vision: a future for Britain's arable plants. London: Plantlife.
- Wilson, P. J.** 1992. Britain's arable weeds. *British Wildlife*, **3**, 149-161.
- Wilson, P. J.** 1999. Space for endangered plants in arable landscapes. In: Proceedings of BCPC Conference, Weeds, 1, 273-278. British Crop Protection Council.
- Wintermantel W.M. and Schoelz J.E.** (1996) Isolation of recombinant viruses between cauliflower mosaic virus and a viral gene in transgenic plants under conditions of moderate selection pressure. *Virology* **223**: 156-164.
- Wipff J K and Fricker C R.,** 2000. *Determining gene flow of transgenic creeping bentgrass and gene transfer to other bentgrass species.* *BioScience* **16**, 36-39
- Woiwod, I. P. & Harrington, R.** 1994. Flying in the face of change: the Rothamsted insect survey. In: Leigh, R. A. & Johnston, A. E (eds) *Long-term experiments in agricultural and ecological sciences*, pp 321-337. London: CAB International.



- Wold, S.J., Burkness, E.C., Hutchison, W.D. & Venette, R.C.** (2001) In-field monitoring of beneficial insect populations in transgenic corn expressing a *Bacillus thuringiensis* toxin. *Journal of Entomological Science* **36**(2): 177-187.
- Wold, S.J., Burkness, E.C., Hutchison, W.D. & Venette, R.C.** 2001. In-field monitoring of beneficial insect populations in transgenic corn expressing a *Bacillus thuringiensis* toxin. *Journal of Entomological Science* **36**(2): 177-187.
- Wolfe, M. S., Barrett, J. A.** 1980. Can we lead the pathogen astray? *Plant Disease* **64**: 148-155
- Wood DW, Setubal JC, Kaul R, et al.** (2001). The genome of the natural genetic engineer *Agrobacterium tumefaciens* C58. *Science* **294** (5550): 2317-2323.
- Wynne B** (1992) Uncertainty and Environmental Learning: reconceiving science and policy in the preventive paradigm, *Global Environmental Change*, **2**(2), 111-127.
- Ye X, Al-Babili S, Klotl A, Zhang J, Lucca P, Beyer P & Potrykus I** (2000) Engineering the provitamin A ( $\beta$ -carotene) biosynthetic pathway into (carotenoid-free) rice endosperm. *Science*, **287**, 303-305.
- Yu S-N. and Bae K-M.** (2002). Development of viral disease resistance in *Dianthus caryophyllus* by transformation of CarMV CP gene. II. Plant transformation and expression of CarMV CP gene. *Journal of the Korean Society for Horticultural Science* **43**: 471-475.
- Zangerl, A.R., McKenna, D., Wraight, C.L., Carroll, M., Ficarello, P., Warner, R. and Berenbaum, M.R.** (2001). Effects of exposure to event 176 *Bacillus thuringiensis* corn pollen on monarch and black swallowtail caterpillars under field conditions. *Proceedings of the National Academy of Sciences*. **98** (21), 11908-11912.
- Zangerl, A.R., McKenna, D., Wraight, C.L., Carroll, M., Ficarello, P., Warner, R. and Berenbaum, M.R.** 2001. Effects of exposure to event 176 *Bacillus thuringiensis* corn pollen on monarch and black swallowtail caterpillars under field conditions. *Proceedings of the National Academy of Sciences*. **98**(21), 11908-11912.
- Zhang H-K, Blumwald E.** 2001. **Transgenic salt-tolerant tomato plants accumulate salt in foliage but not in fruit.** *Nature Biotechnology* **19**: 765-768.
- Zhang, L.-H., P. J. Murphy, A. Kerr, and M. E. Tate.** (1993). *Agrobacterium* conjugation and gene regulation by N-acetyl-L-homoserine lactones. *Nature* **362**: 446-448.

## LIST OF ABBREVIATIONS

ACAF	Advisory Committee on Animal Feedingstuffs (for the UK)
ACNFP	Advisory Committee on Novel Foods and Processes (for the UK)
ACRE	Advisory Committee on Releases to the Environment (for the UK)
AEBC	Agriculture and Environment Biotechnology Commission
ARM	Antibiotic resistance marker
BA	British Association for the Advancement of Science
bp	Base pairs
Bt	Bacillus thuringiensis
CEC	Commission for Environmental Cooperation
cry	Cryptochrome
cv	Cultivar
DNA	Deoxyribonucleic acid
EEA	European Environment Agency
ENTRANSFOOD	European Network for Safety Assessment of Genetically Modified Food Crops.
EU	European Union
EPA	Environmental Protection Agency (for the USA)
ESTO	Earth Science Technology Office
FAO	Food and Agriculture Organisation (of the United Nations)
FDA	Food and Drug Administration (for the USA)
FISH	Fluorescence in-situ hybridisation
FSA	Foods Standards Agency (for the UK)
FSE	Farm-scale evaluation
GM(O)	Genetically modified (organism)
GMHT	Genetically Modified Herbicide Tolerance
HGT	Horizontal gene transfer
ICSU	International Council of Scientific Unions
IFPRI	International Food Policy Research Institute
IgE	Immunoglobulin E
ILGRA	Interdepartmental Liaison Group on Risk Assessment (for the UK)
ILSI	International Life Sciences Institute
JRC	Joint Regulatory Commission (for the European Union)
mRNA	Messenger ribonucleic acid
OECD	Organisation for Economic Cooperation and Development
ORF	Open reading frame
PCR	Polymerase chain reaction
RT-PCR	Reverse transcriptase - polymerase chain reaction
SSSI	Site of Special Scientific Interest
UK	United Kingdom
UNCED	United Nations Conference on Environment and Development
USDA	US Department of Agriculture
WHO	World Health Organisation

A glossary of scientific and technical terms used in this report will be placed on the GM Science Review website (<http://www.gmsciencedebate.org.uk>) shortly after publication and a printed copy will be available on request.



### Questions about GM to be addressed by information (extract from Corr Willbourn report)

The foundation discussion workshops conducted by Corr Willbourn Research and Development as part of the GM public debate, allowed the general public to frame the issues for the programme of debate. The Corr Willbourn work has played a central role in setting the agenda of the Science Review process. The report that arose from this exercise can be viewed at: <http://www.gmnation.org.uk/docs/corrwillbourn.pdf>. It contains the following key questions about GM, framed by the public.

#### **A Basic Information and Definitions**

- A1 What is GM? How is it done? Where is it done / Does it have to be done in a lab?
- A2 What does it mean? How wide is its definition?
  - can everything with genes be modified / can it be done on humans?
  - is spraying crops with pesticides classed as genetic modification?
  - is it a speeding up of a natural process like the survival of the fittest?
- A3 Does it involve chemicals? Which ones and how?
- A4 When and how did it begin? How long has it been going on?
- A5 Does it work?

#### **B Current Status of GM**

- B1 How much is on the market? What percentage of foods on the market are GM? What crops are already genetically modified?
- B2 What new GM crops / foods are planned?
- B3 Who produces GM food?
- B4 Who eats GM food? Do the producers eat it?
- B5 Are we being fed GM foods without knowing it? Do we get told what is GM and what isn't in supermarkets? Do you have to label GM food as GM? How can we tell if it is a GM product / if we've eaten GM?

#### **C Rationale**

- C1 Why do it? Why change what we've got? Is there a need for it? What can it be used for? Who is demanding GM/who says there's a need for it? Is it principally driven by profit? Is it driven by scientists seeing what they can do by playing with nature?

- C2 What are the real benefits? Who is benefiting and who will benefit?
- C3 Will it benefit our lives and how? What's in it for me?
- C4 Will it make life easier / give us better food / more nutritious or healthier food / food with a longer shelf life? Will it be cheaper (by how much and why?) or cost more?
- C5 What is the biggest advantage GM crops can bring the world?
- C6 Will it have medical benefits eg. a cure for diseases such as cancer?
- C7 Will it benefit the world's population, especially the Third World eg. problems of food and water supply?
- C8 What impact will GM crops have on alternative uses of crops eg. GM OSR for biofuels?

## **D Possible Risks to Health**

- D1 Is it good for me or dangerous? How will it affect us? Are there negative effects / side effects / drawbacks to balance against the benefits?
- D2 Is it harmful? Could it be harmful in the future? What harm / damage could it do to the world? Do the people who do it know if it can harm us?
- D3 Could it harm me and my family? Could it harm future generations? Will eating GM foods undermine my health?
- D4 Could harm be caused by:
- the chemicals used
  - cross-contamination
  - additives
  - mutations
  - altering the basic structure of things?
- D5 Could harm take the form of:
- allergic reactions
  - new diseases
  - general negative effect on health?
- D6 Will they be able to cope with problems / treat any new diseases that arise?

## **E Other Possible Effects**

- E1 Could jobs be lost?
- E2 What will happen to ordinary farmers?
- E3 How will farming in the UK progress and compete?
- E4 What could be the effects of the commercialisation of GM crops in the UK?
  - on UK science?
  - will it increase our dependence on industrialised farming methods?
  - will it increase our dependence on lower diversity and chemical dependent farming?
- E5 Could corporations end up controlling the food chain?
- E6 Could world climate change be affected? What does the future hold re food, energy, environment etc?
- E7 What effect might GM have on the environment? Is it destroying nature as we know it? What will the effect be on natural (non-GM?) crops / wildlife?
- E8 What about pesticide harm?

## **F Regulation and Monitoring of Safety**

- F1 Is it safe and how do I know that it is safe? What proof is there that it is safe? What tests are in place? Are all foods fully tested?
- F2 What research has been carried out into the effects on health of modified foods that are already available? What research is being carried out into the potential long term effects?
- F3 What are the real experiences of US farmers and consumers?
- F4 Who funds and carries out the research? How much corporate funding is there? Is the research independent? Should it be?
- F5 What controls and regulations / legislation are in place?
- F6 Who is the regulator and are they independent? Do we need one?

## **G Boundaries**

- G1 Will there be boundaries around what can be changed? How far will they go?
- G2 Where will it stop? eg. Will we get lettuces the size of houses? Will it lead to the cloning of all animals?
- G3 What are the long-term aims of all this research into GM?

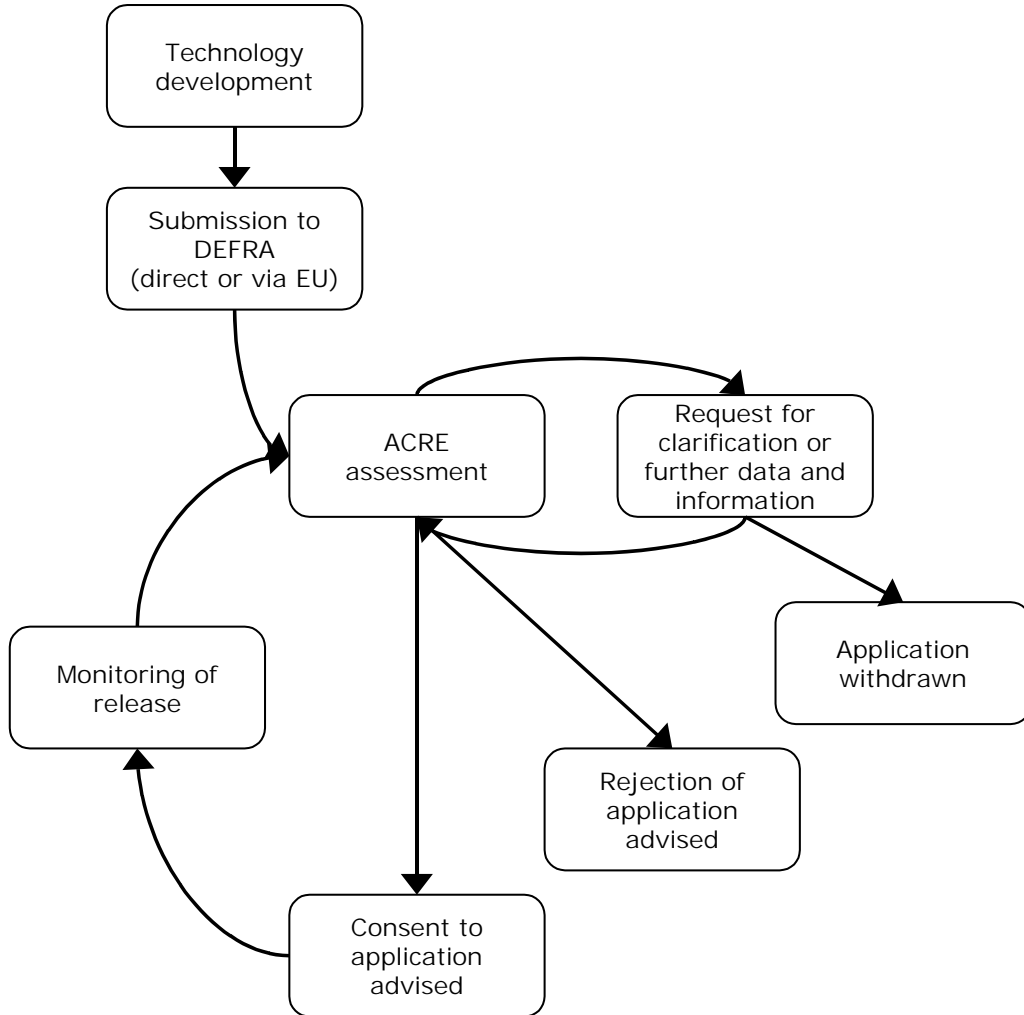
## **H Trust and Confidence**

- H1 Why is there so much disagreement about the benefits and risks of GM?
- H2 Is everything we hear about GM from the people developing the technology?
- H3 Can we get unbiased and impartial information and from whom? Who can you believe or trust? Can scientists be neutral? What is the involvement and attitude of farmers, producers, environmentalists, supermarkets, Government?
- H4 Why does the Government think that the commercialisation of GM crops should go ahead (in concrete terms)? Why did it feel it necessary to decide on sites for FSEs without local consultation?
- H5 Will we be given the full picture? Do we know what happens behind the scenes?
- H6 If problems arise, will we get honest answers from Government? Will Government present research findings properly and fairly?
- H7 Who will be liable for contamination from the commercialisation of GM crops (or any other form of damage?)?

## **J Moral / Ethical Issues**

- J1 Is it right for man to be tampering with nature? Are we playing God?
- J2 What legacy are we leaving future generations?
- J3 The involvement of the Third World: Is Africa being used as a dumping ground? If the Third World needs GM, then why use it in the West? Will it really help the poor or is it about making the rich richer?
- J4 Need to confront more basic problems: Why don't we acknowledge that we waste too much food rather than search for perfect food? Will GM distract us from looking at proven solutions to current farming problems?
- J5 How democratic is it to patent genes?

**Review process undertaken by ACRE in assessing applications for the deliberate release of a GMO in England**





### Description of the regulatory frameworks

#### The Deliberate Release Directive (2001/18/EC)

The release<sup>1</sup> and marketing<sup>2</sup> of genetically modified organisms (GMOs)<sup>3</sup> in the EU are controlled under a EU-wide regime. The essential point about this legal framework is that releases and marketing of GMOs can only take place in the EU with explicit consent of the regulatory authorities. The aim of the legislation is to protect human health and the environment across the EU from any adverse effects that may be caused by the deliberate release into the environment of GMOs. To achieve this objective the directive sets out a system by which GMOs have to be approved on safety grounds and, to this end, each GMO is subjected to a science-based risk assessment. The EU Directive covers both small-scale trials for research and development (so called part B consents) and consent to place on the market in Europe (part C consents). GM Products on the market can be withdrawn if there is information that indicates that a GMO will be harmful.

In the UK, all of this information is evaluated and weighed by the Advisory Committee on Releases to the Environment (ACRE), an independent, expert scientific committee. On this basis, the committee advises whether there are any significant risks associated with the GMO release. The committee operates in an open and transparent way and its work can be viewed on their website<sup>4</sup>. Annex I shows the review process undertaken by ACRE in assessing applications.

#### GM food and feed

Comparable legislation covers GM food and Feed Safety. The Novel Food Regulation (258/97) introduced a statutory pre-market approval system for novel foods throughout the EU which is directly applicable and legally binding in all Member States. These regulations cover a range of novel foodstuffs and by definition all foods and food ingredients containing, or consisting of, GMOs or produced from GMOs are novel.

The protocols for the safety assessment of GM foods are based upon a decision tree approach, which was developed by Advisory Committee on Novel Foods and Processes (ACNFP) prior to the current regulation and which has been endorsed by FAO and WHO. This assessment ensures an integrated, stepwise, case-by-case, evidence-based approach. The safety assessment uses the concept of substantial equivalence. This is not an end

---

<sup>1</sup> A GMO is 'released' if someone deliberately allows it to pass from their control into the environment. A GMO would 'escape' if it passed unintentionally from a person's control into the environment.

<sup>2</sup> GMOs of any description are 'marketed' when products consisting of or including such organisms are placed on the market.

<sup>3</sup> Techniques of genetic modification include recombinant nucleic acid techniques involving the formation of new combinations of genetic material by the insertion of nucleic acid molecules, produced by whatever means outside an organism, into any virus, bacterial plasmid or other vector system and their incorporation into a host organism in which they do not naturally occur but in which they are capable of continued propagation.

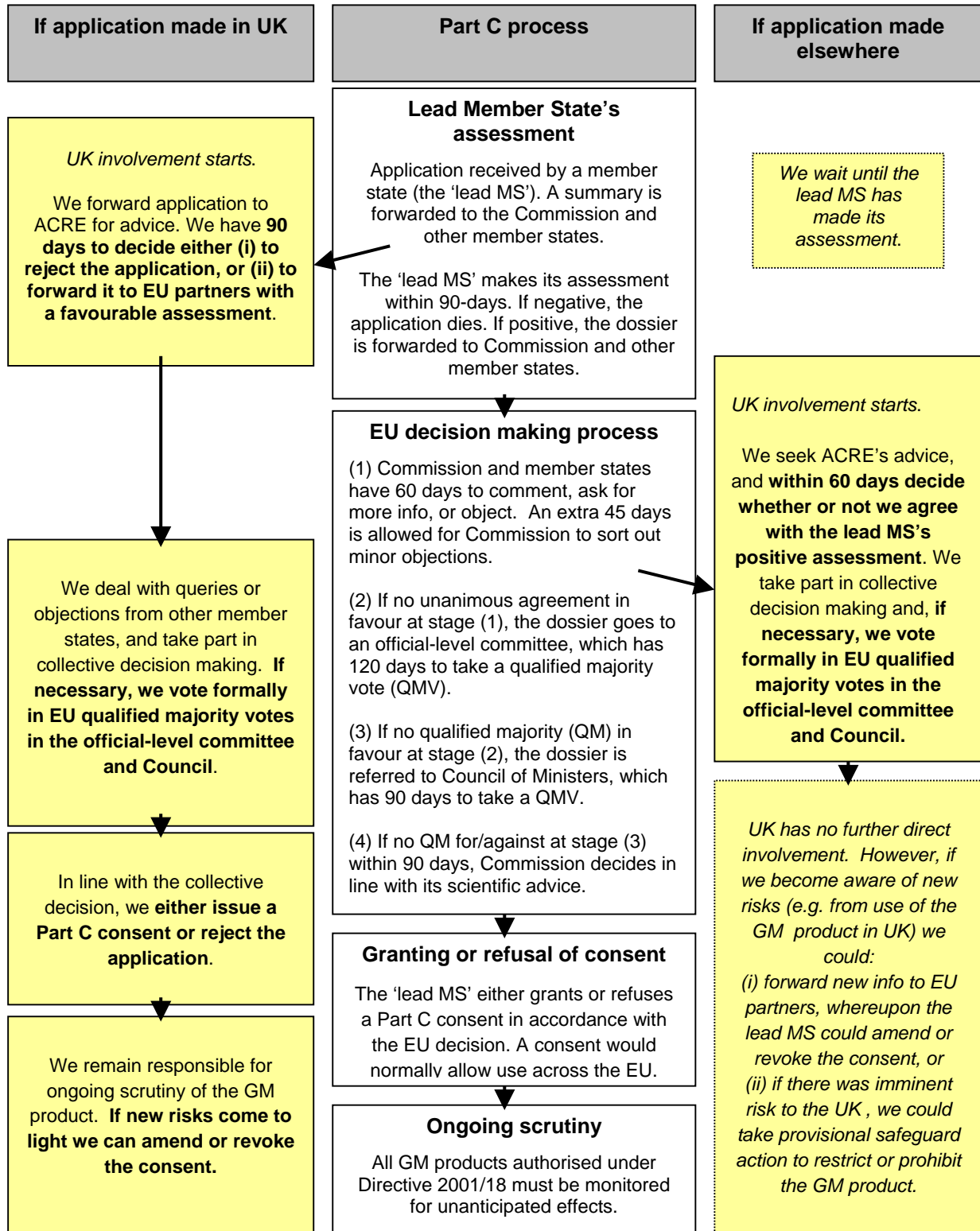
<sup>4</sup> [www.defra.gov.uk/environment/acre](http://www.defra.gov.uk/environment/acre)

point but a comparative approach used to identify significant differences between the new food and its traditional counterpart, which are then the subject of further investigation. Arrangements are subject to review in light of developments in science and technology, for example new applications of GM and improved analytical methods.

In the UK two Advisory Committees are at the forefront of this activity – these are Advisory Committee on Novel Foods and Processes (ACNFP) and Advisory Committee on Animal Feeding stuffs (ACAF). Both Committees are made up of independent experts appointed solely for their particular expertise and experience. They do not represent any sector, organisation or government department. Likewise, both Committees are committed to a policy of openness and publish agenda, minutes, reports and dossiers on their respective websites.

Under the Novel Foods Regulation (258/97), companies wishing to market a novel food in the EU are required to submit an application to the Competent Authority in the Member State where they first tend to market the product. Since 1 April 2000 the Food Standards Agency has been the UK Competent Authority.

**Key UK decisions/actions in the Directive 2001/18 Part C (marketing) procedure**



## Notes

- (1) The centre boxes show key stages of the Part C procedure. The boxes on either side indicate key decisions/actions the UK must take, depending on whether or not we are the 'lead member state' (if we are, our involvement is greater and we must take decisions earlier).
- (2) Currently, Defra leads on 2 Part C applications, and other member states lead on another 17.
- (3) The timescales given below are maxima set by the Directive: in practice things could happen *faster*, but they could also happen *slower* because the clock can stop if there is a justified request for more information from a member state or the Commission.
- (4) UK decisions are taken in consultation with devolved administrations (DAs).
- (5) Defra and DAs get expert scientific advice principally from the Advisory Committee on Releases to the Environment (ACRE).

### European Commission proposals on GM food and feed

The European Commission published two proposals for new legislation concerning genetically modified organisms (GMOs) in July 2001, one covering Food and Feed and the other, on Traceability and Labelling of GMOs. These proposals were issued in response to the current impasse in the approval process for consents to release GMOs into the environment, to address the lack of specific legislative controls on GM animal feed, to revise the approval regime for GM food and feed and extend the current labelling requirements.

This proposed GM food and feed regulation will replace the existing approval procedures for GM foods, as contained in Regulation 258/97 and introduce for the first time rules for the approval of GM animal feed and a harmonised procedure for the scientific assessment and authorisation of GMOs and GM food and feed. It would be a uniform and transparent Community procedure for all marketing applications, whether they concern the GMO itself or the food and feed derivatives.

The proposal will place the European Food Safety Authority (EFSA), rather than individual Member States, at the centre of the approval process. EFSA will carry out the scientific risk assessment covering both the environmental risk and human and animal health safety assessment. On the basis of the opinion of EFSA, the Commission will draft a proposal for granting or refusing authorisation.

The proposal includes labelling provisions that will require labelling of all GM food and feed products derived from GMOs, regardless of the presence or absence of GM material in the final food or feed product. This is an extension to the existing labelling rules and means highly processed products such as oils and glucose syrup, alcoholic drinks, made using GM grain and foods sold in restaurants, which had been cooked in oil derived from GM crops would require labelling. Honey produced by bees foraging nectar from GM crops would also have to be labelled.

Foods produced using processing aids which have been obtained with the help of GM technology (e.g. the enzyme chymosin derived from a GM microorganism, which is used extensively to make hard cheeses) and products from animals fed GM animal feed will continue to be exempt from the labelling requirements.

The proposal agreed at Common Position includes threshold at levels of 0.9%, for GM material in food and feed that has an EU authorisation, and 0.5%, for material not yet authorised but that has a favourable EU risk evaluation (or safety assessment) for accidental present GM-derived material in non-GM supplies below which labelling is not required. The 0.5% threshold will last for three years.

Political agreement was reached on the proposal on 28 November 2002 at the EU Agriculture Council. The proposal was agreed by a qualified majority vote. Common position was adopted on 17 March 2003.

The proposal has now returned to the European Parliament for its second reading with the plenary session due in July 2003. Depending on the outcome of the plenary the proposal may be adopted in late 2003 with Member States implementing the new Regulations within six months of adoption. Alternatively the proposal may go through the conciliation process.

## Annex VI

### Further information available on the GM Science Review website

(<http://www.gmsciencedebate.org.uk/default.htm>)

GM Science Review Panel:

<http://www.gmsciencedebate.org.uk/panel/default.htm>

GM Science Review Panel meetings:

<http://www.gmsciencedebate.org.uk/panel/default.htm#Meetings>

GM Science Review open meetings:

<http://www.gmsciencedebate.org.uk/meetings/default.htm>

Contributions to the GM Science Review website:

<http://www.gmsciencedebate.org.uk/topics/forum/default.htm>