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PRESS RELEASE

New Report Highlights Huge Gaps in GM Crop Science

A new report (1) on the impact of GM on the genetics of the modified crops by an independent group of scientists has highlighted huge gaps in scientific knowledge and the need to greatly improve scientific assessment procedures before GM crops are licensed.

The report, by the group EcoNexus (2), is based on the peer-reviewed scientific literature and USDA (3) documents. It examines the consequences of genetic modification events for the integrity of transgenic plant genomes (4) and suggests that significant genetic damage can arise. These consequences include:

- ?? large scale genetic rearrangements of host DNA at transgene insertion sites
- ?? many hundreds to thousands of individual mutations scattered throughout the genome of each new transgenic plant

The authors (5) suggest that these changes are caused through genetic engineering itself, i.e. by transgene insertion and the procedures plant cells are subjected to in order to insert the transgene.

Most crop plants are a complex mixture of biologically active chemicals with both positive and negative health effects, they often are bred from inedible ancestors and many have poisonous tissues or organs. Consequently, food safety of edible crops relies crucially on genetic stability and predictability rather than being an inbuilt property of crop plants. Therefore, the discovery of these genetic changes arising from GM, the authors suggest is highly significant and has major implications for the safety of transgenic crops.

The report analyses crops that are already on the market around the world based on documents obtained from the USDA. It finds that regulators fail to require adequate analysis of transgene insertion sites and that there is no mechanism to detect random genetic damage induced by transformation.

These omissions appear to result from failure to appreciate the magnitude of genetic damage sustained by transgenic plants. They indicate that regulators are not keeping up with the latest research, that there are massive gaps in the regulatory systems which are supposed to ensure transgenic crops are safe: thus regulators have been guilty of making dubious assumptions about the similarities between transgenic crops and plants developed by traditional plant breeding.

Commenting for EcoNexus one of the report's authors Dr Jonathan Latham said:

"This genetic unpredictability should be treated very seriously indeed. Once inserted, the mutations highlighted in this report cannot easily be eliminated from transgenic crops and nor can their consequences for food safety and the environment easily or reliably be determined. Consequently, they present a major challenge to the plant biotechnology industry. Their elimination will require major changes to plant transformation methods".

ENDs

Notes for editor:

(1). This new report (Genome Scrambling – Myth or reality? Transformation-induced mutations in transgenic crop plants) is 36 pages long and available as a pdf file at www.econexus.info. It is written by Dr. Allison Wilson, Dr. Jonathan Latham and Dr. Ricarda Steinbrecher of EcoNexus.

(2) EcoNexus is a not-for-profit public interest research organisation and science watchdog. It offers a rigorous scientific critique of genetic engineering (GE) and genetically modified organisms. It investigates and reports on the impacts of GE on the environment, health, food security, agriculture, human rights and society. EcoNexus also examines the influence of transnational corporations (TNCs) on development issues and scientific, social, economic and political processes. It is based in the UK and collaborates with a diversity of networks nationally and internationally.

(3) USDA, United States Department of Agriculture.

(4) Genome, the sum total of the genetic material (DNA) of an organism.

(5) The authors:

Dr. Allison Wilson is a plant molecular geneticist. She has a degree in biological sciences from Cornell University, USA, (1985) and did her dissertation (PhD) on hormone-resistant mutants in *Arabidopsis* at Indiana University, Bloomington, USA. She carried out post-doctoral research in genetics and molecular biology for 5 years. She has published papers in scientific journals and given talks on her research at international meetings. She has also written entries for the Encyclopaedia of Molecular Biology (1999, TE Creighton, Ed). Her main area of expertise is plant genetics and molecular biology.

Dr. Jonathan Latham is a molecular biologist and plant virologist. He has a degree in biology from Bath University (1989), an MSc from the University of Wales, Aberystwyth and a PhD in plant virology from the John Innes Institute, Norwich, UK. He was subsequently a postdoctoral researcher in the Dept. of Genetics at the University of Wisconsin (Madison, USA). Currently, he is investigating the use of plant virus genes to make GM plants.

Dr. Ricarda Steinbrecher has a masters degree (first class honours) in biology with a focus on developmental biology and microbiology, from the University of Kiel, Germany (1985) and a PhD in molecular genetics from the University of London. She has specialised in gene regulation since 1982 and has worked as a research scientist in the field of mutational analysis, gene identification and gene therapy in university and hospital settings. Since 1995 she has focused on genetic engineering in food and farming, its risks and potential consequences on health, food security and the environment. She has been closely involved with the international negotiations and implementation of the Cartagena Biosafety Protocol since 1995. She has been advisor and consultant to many national and international organisations and is co-founder of the Genetic Engineering Alliance and its GM Freeze Campaign in the UK.

Ricarda Steinbrecher is co-author of the book “Hungry Corporations – transnational biotech companies colonise the food chain”, published in 2003, and is author of many scientific papers, briefings, commentaries and reports.

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