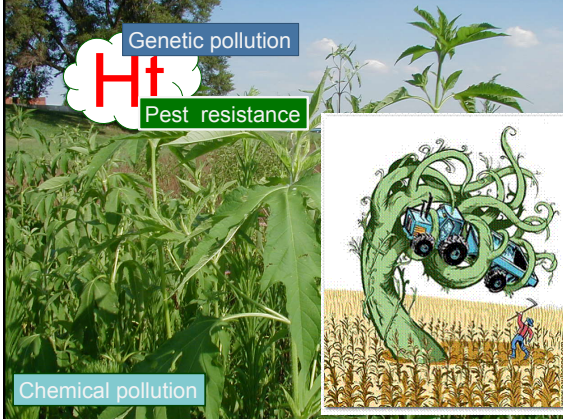




Bt Pest resistance

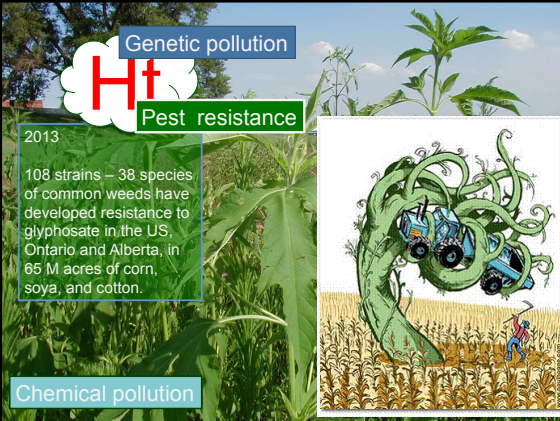
Farmers must spray insecticides to prevent insects from developing resistance

Chemical pollution



Genetic pollution
Ht
Pest resistance

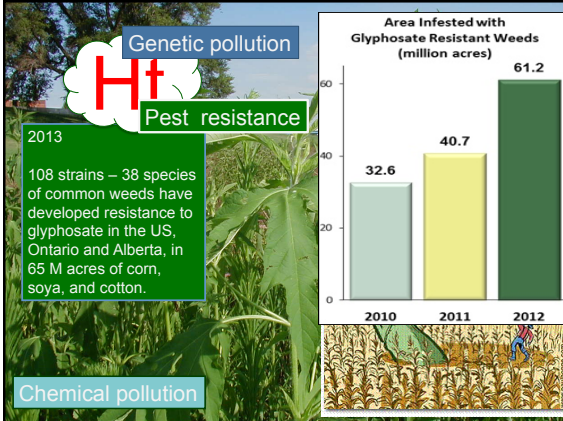
Chemical pollution



Genetic pollution
Ht
Pest resistance

2013
108 strains – 38 species of common weeds have developed resistance to glyphosate in the US, Ontario and Alberta, in 65 M acres of corn, soya, and cotton.

Chemical pollution



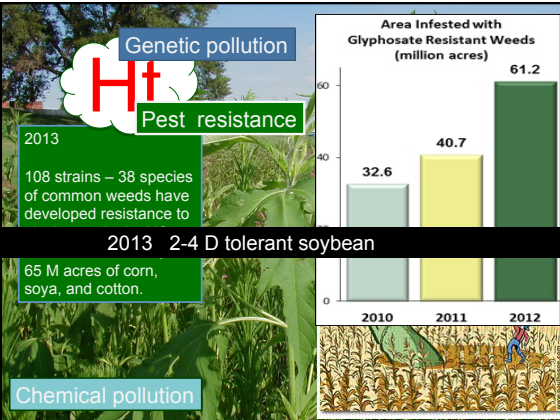
Genetic pollution
Ht
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Area Infested with Glyphosate Resistant Weeds (million acres)

Year	Area (million acres)
2010	32.6
2011	40.7
2012	61.2

Chemical pollution



Genetic pollution
Ht
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2013 2-4 D tolerant soybean

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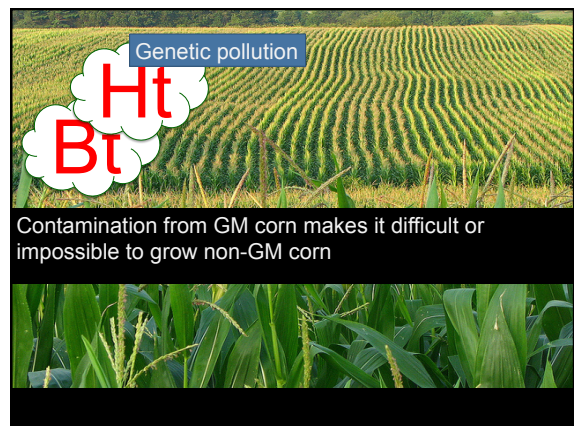
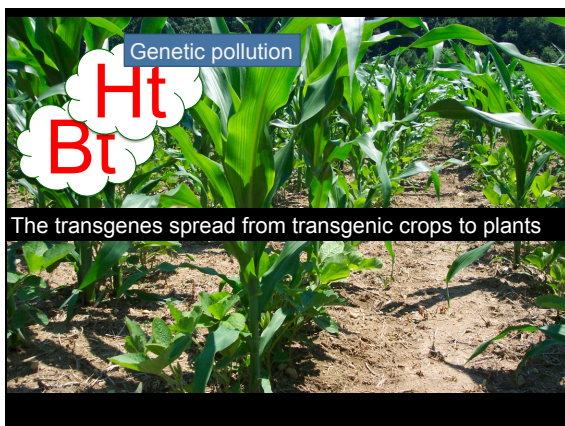
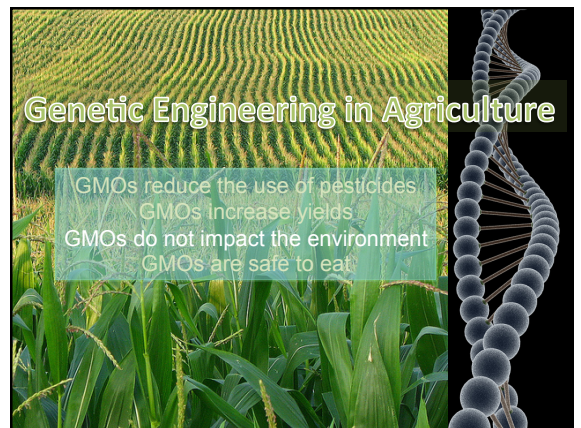
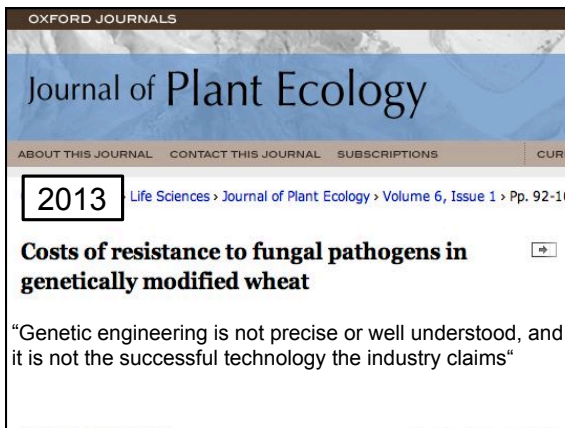
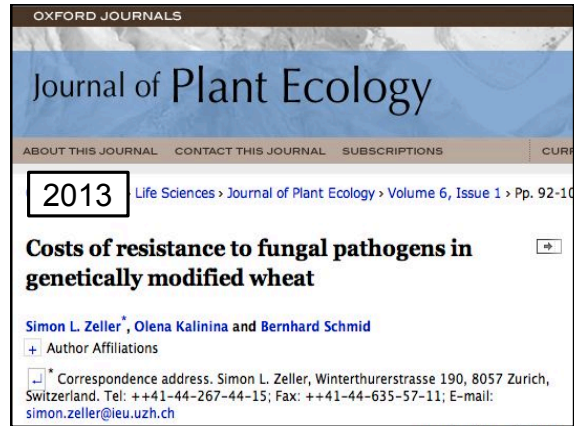
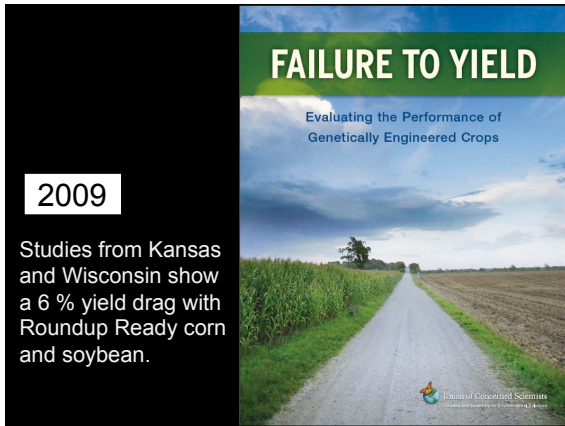
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Chemical pollution




Genetic Engineering in Agriculture


GMOs reduce the use of pesticides
GMOs increase yields
GMOs do not impact the environment
GMOs are safe to eat




Genetic pollution




Contamination from GM canola makes it difficult or impossible to grow non-GM canola



Genetic pollution



Contamination from GM canola makes it difficult or impossible to grow non-GM canola.
Canada's annual \$ 300 M canola export to EU evaporated



Genetic pollution



The canadian flax seed export markets also disappeared because of contamination with GM flax



Genetic pollution



Contamination from Arctic apple trees will make it difficult or impossible to grow organic or conventional apples.

Genetic pollution



Contamination from GM alfalfa will make it difficult or impossible to grow non-GM alfalfa.



Genetic pollution



Contamination from GM crops will make it difficult to grow backyard gardens.

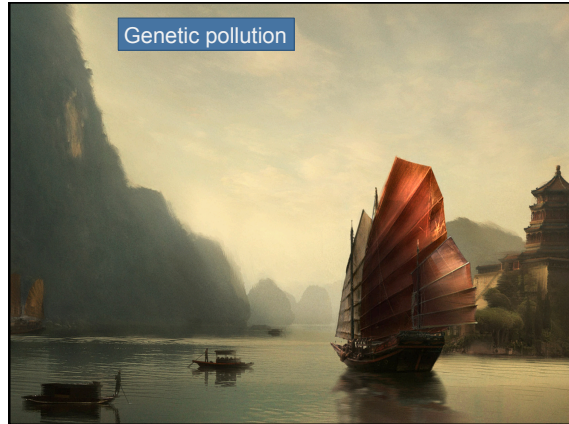


Genetic pollution



Contamination from GM crops will make it difficult to grow backyard gardens.

- Beets
- Corn
- Brassica
- Squash
- Tomato
- Peppers

Genetic pollution

The transgenes spread from transgenic crops to other plants and to soil organisms



Lateral gene transfer

Genetic pollution

A survey of drug resistance transgenes originating from synthetic plasmid vectors in 6 chinese rivers.
Sichuan University , Chengdu, Sichuan Province People's Republic of China.

2012

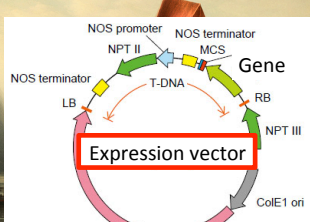


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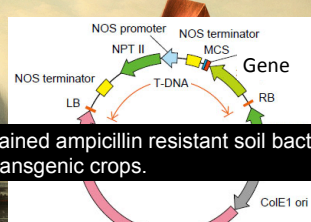


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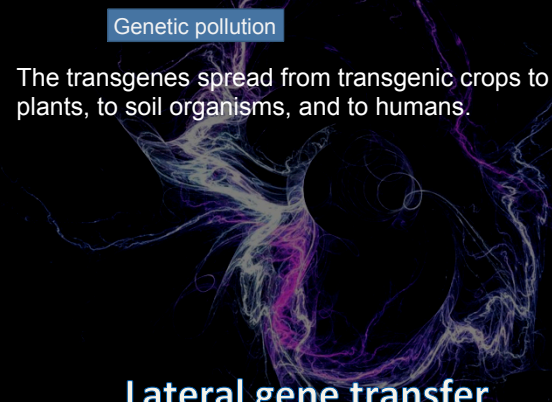


All rivers sampled contained ampicillin resistant soil bacteria originating from local transgenic crops.

Lateral gene transfer

Genetic pollution

The transgenes spread from transgenic crops to plants, to soil organisms, and to humans.

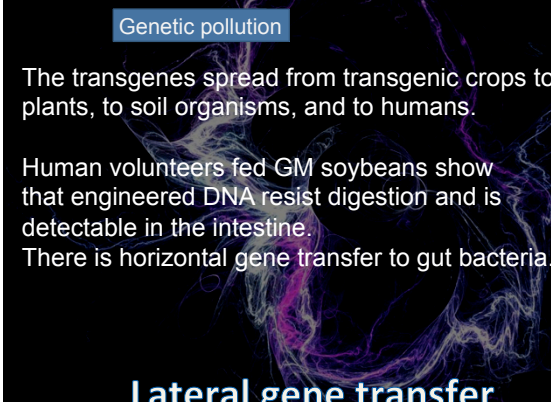


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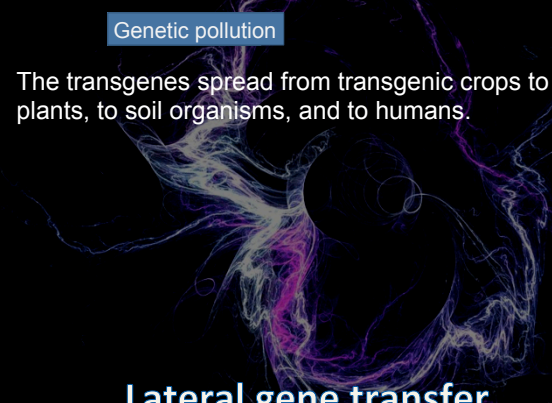
Human volunteers fed GM soybeans show that engineered DNA resist digestion and is detectable in the intestine. There is horizontal gene transfer to gut bacteria.



Lateral gene transfer

Genetic pollution

The transgenes spread from transgenic crops to plants, to soil organisms, and to humans.



Lateral gene transfer

Like 25 Genetic pollution reset E-mail Print Share

Published on Monday, March 11, 2013 by Common Dreams

Official: 'Catastrophic Threat' of Antibiotic-Resistant 'Superbugs'


UK's chief medical officer warns of deadly threat of untreatable infections in face of mutated bacteria

- Lauren McCauley, staff writer

Antibiotic resistant "superbugs" pose a "catastrophic threat" as untreatable infections may prove lethal, Britain's top health official warned in a new report published Monday.

"Antimicrobial resistance poses a catastrophic threat. If we don't act now, any one of us could go into hospital in 20 years for minor surgery and die because of an ordinary infection that can't be treated by antibiotics," cautioned Sally Davies, England's chief medical officer.

*Routine operations like hip and knee joints



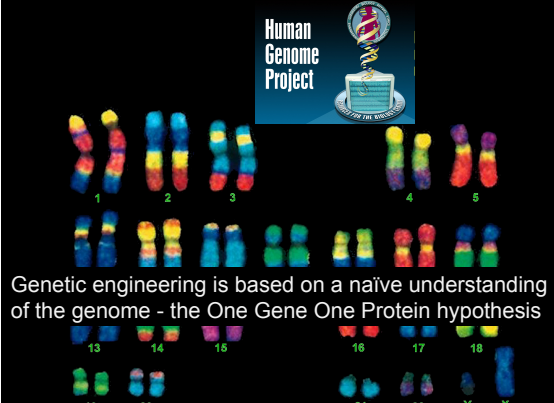
Lateral gene transfer

Genetic Engineering in Agriculture


GMOs reduce the use of pesticides
 GMOs increase yields
 GMOs do not impact the environment
 GMOs are safe to eat



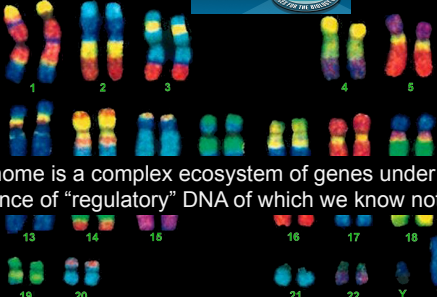
Human Genome Project




Genetic engineering is based on a naïve understanding of the genome - the One Gene One Protein hypothesis



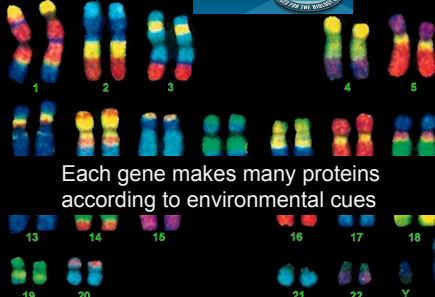
Human Genome Project



A genome is a complex ecosystem of genes under the influence of "regulatory" DNA of which we know nothing



Human Genome Project




Each gene makes many proteins according to environmental cues



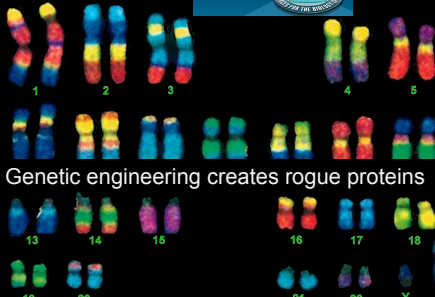
Human Genome Project



Inserting a transgene into a genome and expecting only the single protein you want and nothing else, is fallacy



Human Genome Project




Genetic engineering creates rogue proteins




Genetic Engineering in Agriculture

GMOs reduce the use of pesticides
GMOs increase yields
GMOs do not impact the environment
GMOs are safe to eat



There is no need to test the safety of GM foods. So long as the engineered protein is safe, food from GM crops are *substantially equivalent* and they cannot pose any health risks.




MONSANTO
imagine™

Letter of agreement from the FDA to Monsanto

1996

Based on the safety and nutritional assessment you have conducted, you have concluded that your genetically modified varieties of corn are not different in composition, safety, and other relevant parameters from corn currently on the market, and that they do not require premarket review by the FDA.

MONSANTO
imagine™



Genetic pollution


1998

Amino acid sequence alignments to assess potential allergenicity of proteins used in genetically modified foods.

Advances in Food and Nutrition Research

sequence similarity between Cry1Ab and Cry1Ac and vitellogenin, a known allergen, as well as between Cry3A and β -lactoglobulin, a major milk allergen.

Chemical pollution in mice and rats ...



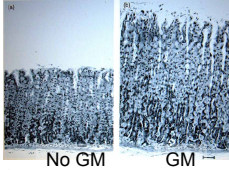
Genetic pollution

1999

Effect of diets containing genetically modified potatoes expressing *Galanthus nivalis* lectin on rat small intestine


The Lancet

Pre-cancerous cell growth in the digestive tract



No GM GM

Chemical pollution in mice and rats ...



Genetic pollution


1999

Bacillus thuringiensis Cry1Ac protein is a potent systemic and mucosal adjuvant.

Scandinavian Journal of Immunology

Cry1Ac is a mucosal and systemic adjuvant as potent as cholera toxin which enhances mostly serum and intestinal IgG antibody responses

Chemical pollution in mice and rats ...



Genetic pollution

2002


Mice fed GM soy had damaged liver cells

Altered gene expression

Higher metabolic activity (stress)

Cell Structure and Function

Chemical pollution in mice and rats ...




Genetic pollution

2004

Mice fed GM soy had damaged testicles or changes in their uterus and ovaries

European Journal of Histochemistry

Chemical pollution in mice and rats ...




Genetic pollution

2004

Safety testing and regulation of genetically engineered foods. **Biotechnology**

In 1996 there were lots of internal FDA memos documenting an overwhelming consensus among FDA scientists that transgenic crops would have **unpredictable**, hard to detect side effects – allergens, toxins, nutritional effects, new diseases. They urged their superiors to require long-term feeding studies.

Chemical pollution




Genetic pollution

2005

Transgenic expression of bean α -amylase inhibitor in peas result in altered structure and immunogenicity. **Journal of Agricultural and Food Chemistry**

the genetic engineering process transformed a protein that is safe into one that is toxic

Chemical pollution in mice and rats ...




Genetic pollution

2008

Proteomics as a complementary tool for identifying unintended **side effects** occurring in transgenic maize seeds as a result of genetic modifications. **Journal of Proteome Research**

43 proteins in MON 810 plants were significantly **disrupted**, compared to the non-GE near isoline.

Chemical pollution in mice and rats ...




Genetic pollution

2008

GM crops (Bt corn, Ht corn, RoundUp Ready soybean, and a male-sterile canola) currently on the market, showed that the transgenic lines **have different proteins** compared to the original structure reported by the companies.


Scientific Institute of Public Health, Brussels, Belgium.

Chemical pollution in mice and rats ...



Genetic pollution


2009



Based on independent studies **showing infertility, immune dysregulation, accelerated aging, dysregulation of genes associated with cholesterol synthesis, insulin regulation, cell signaling and protein synthesis, and changes in the liver, kidney, spleen, and gastrointestinal tract**, the AAEM calls for:

A moratorium on GM foods, safety testing and labeling

Chemical pollution



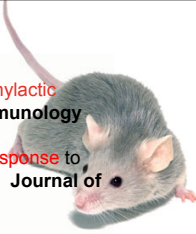
Genetic pollution

2012 Ingesting BT corn invokes an **anaphylactic** response within the body. **Journal of Immunology**

2012 Intestinal and peripheral **immune response** to MON810 maize in weaning and old mice. **Journal of Agriculture and Food Chemistry.**

2012 Glyphosate induces **apoptosis** in mature rat testicular cells in vitro. **Toxicology in Vitro**

Chemical pollution in mice and rats ...





Food and Chemical Toxicology xxx (2012) xxx-xxx

2012

Contents lists available at SciVerse ScienceDirect

Food and Chemical Toxicology

Journal homepage: www.elsevier.com/locate/foodchemtox

Long term toxicity of a Roundup-tolerant genetically modified maize

Gilles-Eric Séralini^{a,*}, Emilie Clair^a, Robin Mesnage^a, Steeve Gress^a, Nicolas Defarge^a, Manuela Malatesta^b, Didier Hennequin^c, Joël Spiroux de Vendômois^a

^a University of Caen, Institute of Biology, CIRAD and Risk Pole, MESA-CNRS, EA 2608, Esplanade de la Paix, Caen Cedex 14032, France
^b University of Verona, Department of Neurological, Neuropsychological, Morphological and Motor Sciences, Verona 37134, Italy
^c University of Caen, UR ARISE, EA 4651, Bd Marché-Juin, Caen Cedex 14032, France

ARTICLE INFO

ABSTRACT

The health effects of a Roundup-tolerant genetically modified maize (from 11% in the diet), cultivated with or without Roundup, and Roundup alone (from 0.1 ppb in water), were studied 2 years in rats. In females, all treated groups died 2-3 times more than controls, and more rapidly. This difference was visible in 3 male groups fed GMO. All results were hormone and sex dependent, and the pathological profiles were comparable. Females developed large mammary tumors almost always more often than and before controls, the pituitary was the second most disabled organ; the sex hormonal balance was modified by GMO and Roundup treatments. In treated males, liver congestions and necrosis were 2.5-5.5 times higher. This pathology was confirmed by optic and transmission electron microscopy. Marked and severe kidney nephropathies were also generally 1.3-2.3 greater. Males presented 4 times more large palpable tumors than controls which occurred up to 600 days earlier. Biochemistry data confirmed very significant kidney chronic deficiencies: for all treatments and both sexes, 70% of the altered parameters were kidney related. These results can be explained by the non linear endocrine-disrupting effects of Roundup, but also by the overexpression of the transgene in the GMO and its metabolic consequences. © 2012 Elsevier Ltd. All rights reserved.

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2012

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Rats fed a diet containing 11 percent GM corn developed serious health problems and started dying at 11 months with breast cancer, kidney and liver damage

Gilles-Eric Séralini^{a,*}, Emmanuel Mesnage^a, Robin Mesnage^a, Steeve Gress^a, Nicolas Defarge^a, Manuela Malatesta^b, Didier Hennequin^c, Joël Spiroux de Vendômois^a

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To put this into human perspective with a lifespan of 80 years, these health problems should start during the 43rd year of your life, provided your diet contained over 10 percent GM foods from early childhood

Keywords: GMO; Roundup; N6053; Rat; Glyphosate-based herbicides; Endocrine disrupting effects

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North Americans are now eating 193 lbs of GM food annually

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A growing body of scientific research refutes the claims of GMOs

2013
Over 60 countries including Japan, South Korea, Australia, Russia, India, New Zealand, Saudi Arabia, and most of Europe, now require GM foods to be labelled.



A growing body of scientific research refutes the claims of GMOs

GMO MYTHS AND TRUTHS

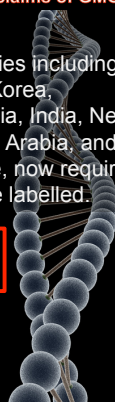
An evidence-based examination of the claims made for the safety and efficacy of genetically modified crops

Michael Antoniou
Ph.D. Johnson
June 2012

earth open source

earthopensources

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SOUP

say "LUCKIES are less irritating" "It's toasted".

US voters want labelling




A growing body of scientific research refutes the claims of GMOs

2013

20,679[†] Physicians say "LUCKIES are less irritating" "It's toasted"

Your Throat Protection against irritation against cough

In a recent survey 91% of US voters want labelling




A growing body of scientific research refutes the claims of GMOs

2013

20,679[†] Physicians say "LUCKIES are less irritating" "It's toasted"

Your Throat Protection against irritation against cough

20 US state legislatures have now introduced bills requiring mandatory labeling of GE foods



A growing body of scientific research refutes the claims of GMOs

COMOX VALLEY ECHO

SATURDAY MARCH 23, 2013

2013

Fishing Licence

What do you think of Courteney's dramatic fall on the 'best places to live' list?

2012

QUESTION OF THE WEEK

What do you think of Courteney's dramatic fall on the 'best places to live' list?

2012

Poll from 03/15/2013 to 03/22/2013

Should genetically modified crops be banned on Vancouver Island?

