



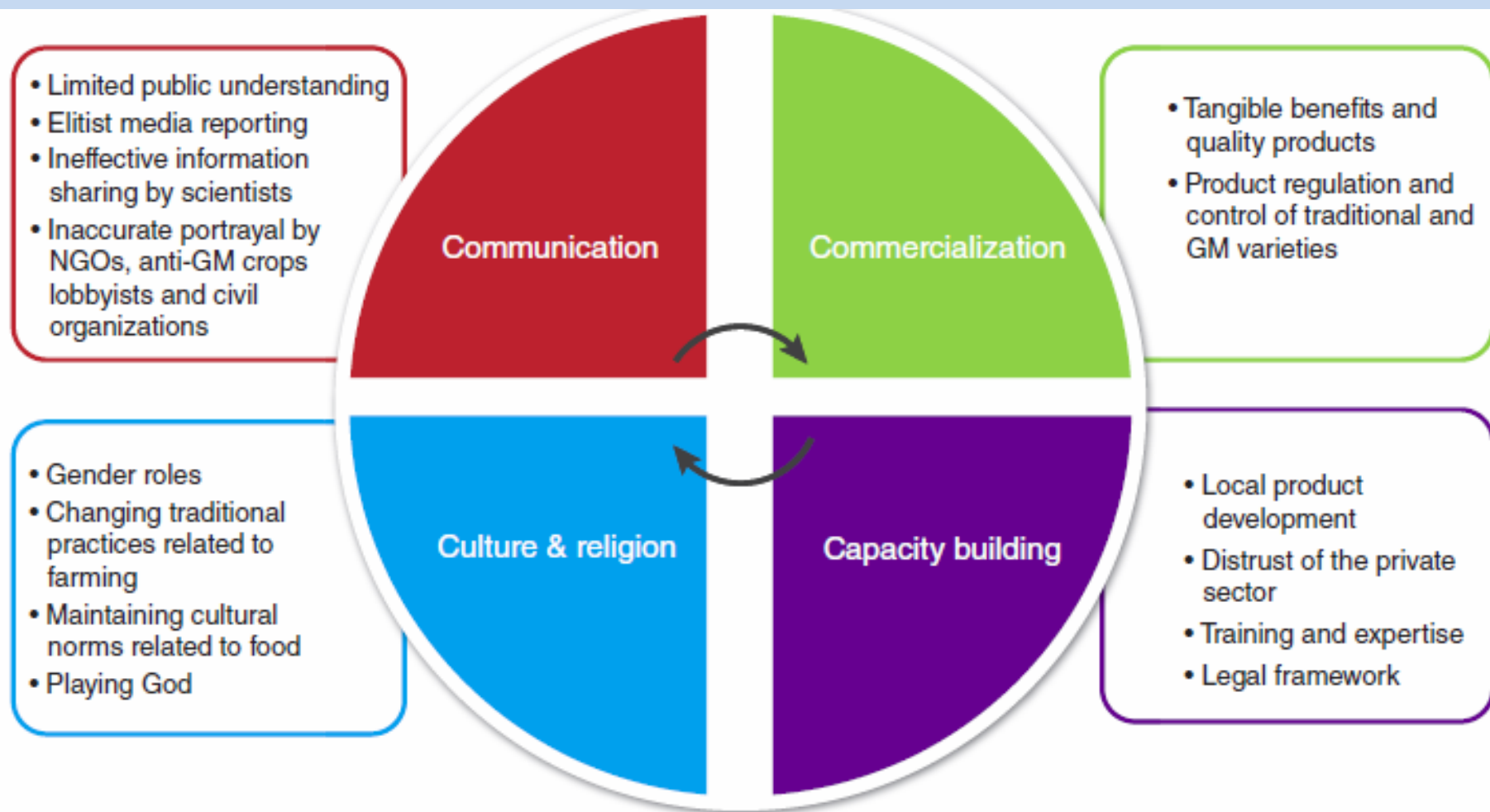
**Parliament of South Africa**  
**March 6, 2012**

# **Urban Myths on Green Biotechnology**

## **Proposals for Successful Discourses**

Klaus Ammann, em. Prof. University of Bern, Switzerland  
[klaus.ammann@ips.unibe.ch](mailto:klaus.ammann@ips.unibe.ch)

# Factors in adoption and development of agbiotech in sub-Saharan Africa



**Figure 1** Factors in the adoption and development of agbiotech in sub-Saharan Africa.

**Ezezika, O.C., Daar, A.S., Barber, K., Mabeya, J., Thomas, F., Deadman, J., Wang, D., & Singer, P.A. (2012)**

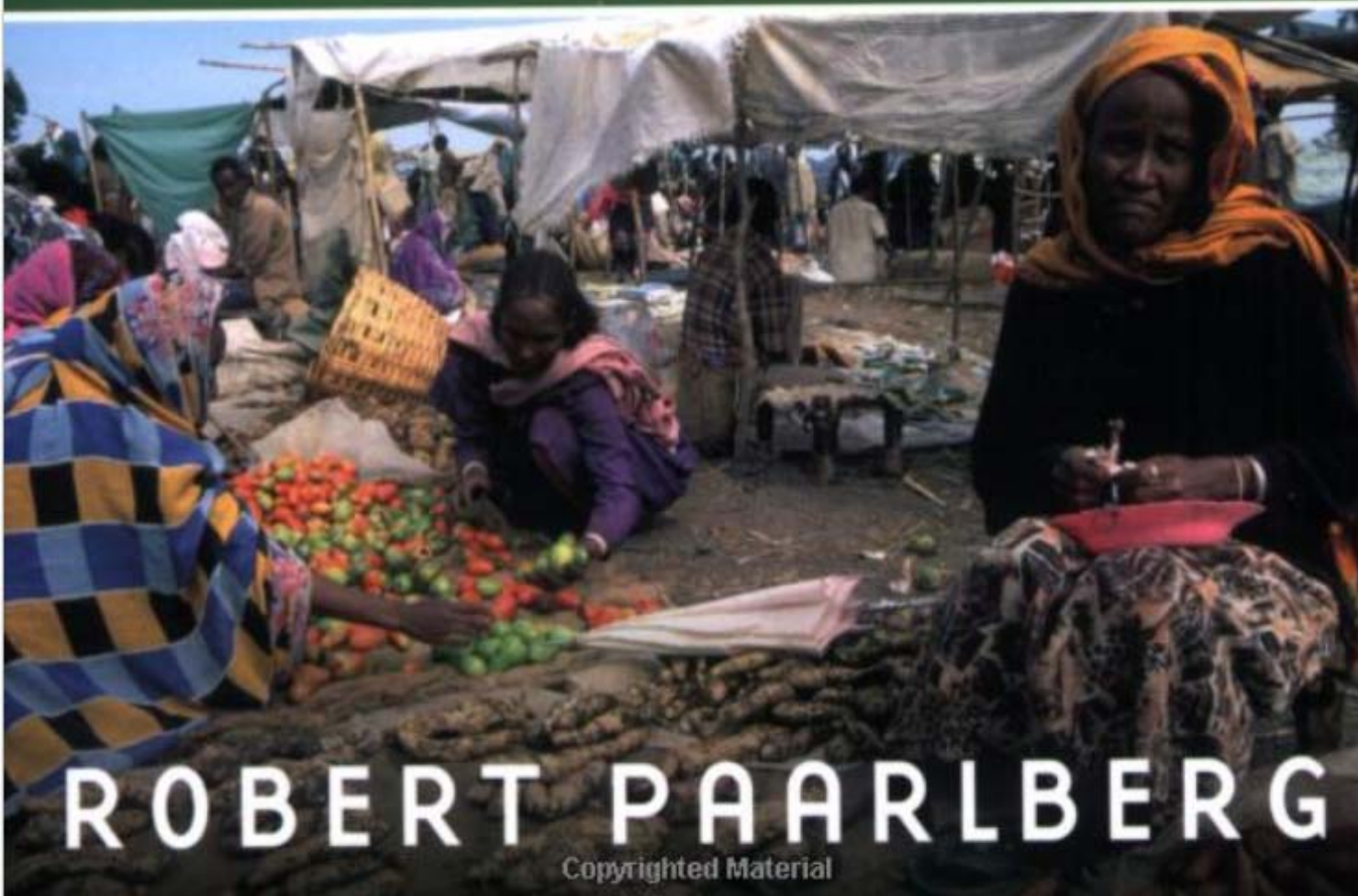
Factors influencing agbiotech adoption and development in sub-Saharan Africa. *Nat Biotech*, 30, 1, pp 38-40

<http://dx.doi.org/10.1038/nbt.2088> AND <http://www.nature.com/nbt/journal/v30/n1/abs/nbt.2088.html#supplementary-information>

AND <http://www.ask-force.org/web/Developing/Ezezika-Factors-Influencing-Agbiotech-Africa-2012.pdf>

# FOOD POLITICS

WHAT EVERYONE NEEDS TO KNOW



Paarlberg Robert  
(2010)

Food Politics:

What Everyone  
Needs to Know

Oxford University  
Press, USA (April 7,  
2010) Oxford,

IS: ISBN-10:  
019538959X ISBN-13:  
978-0195389593, pp  
240

[http://www.amazon.com/Food-Politics-What-Everyone-Needs/dp/019538959X/ref=sr\\_1\\_1?s=books&ie=UTF8&qid=1327520945&sr=1-1](http://www.amazon.com/Food-Politics-What-Everyone-Needs/dp/019538959X/ref=sr_1_1?s=books&ie=UTF8&qid=1327520945&sr=1-1)





# THE NEW HARVEST

Agricultural Innovation in Africa

Calestous Juma

Juma, C. (2011)

**The New Harvest:  
Agricultural Innovation in  
Africa Preprint 3 Chapters  
Oxford University Press**

(14. Januar 2011) IS: ISBN-  
10: 0199783195 ISBN-13:  
978-0199783199, pp 296

<http://www.ask-force.org/web/Developing/Juma-Governing-Innovation-2011.pdf> and  
<http://www.ask-force.org/web/Developing/Juma-Growing-Economy-Ch-1-2011.pdf> and  
<http://www.ask-force.org/web/Developing/Juma-Introduction-2011.pdf>

AND

[https://www.amazon.de/New-Harvest-Agricultural-Innovation-Africa/dp/0199783195/ref=sr\\_1\\_1?ie=UTF8&qid=1320909861&sr=8-1](https://www.amazon.de/New-Harvest-Agricultural-Innovation-Africa/dp/0199783195/ref=sr_1_1?ie=UTF8&qid=1320909861&sr=8-1)

## Urban Myth

Example 1: Nature is serene, stable, eternal  
And we should touch it as little as possible  
some opponents close to creationism

NATURE  
IS FULL OF INFINITE CAUSES  
THAT HAVE NEVER OCCURRED IN EXPERIENCE.

LEONARDO DA VINCI

Although nature commences with reason and ends in experience it is necessary for us to do the opposite, that is to commence with experience and from this to proceed to investigate the reason.

Leonardo da Vinci

[http://www.brainyquote.com/quotes/authors/l/leonardo\\_da\\_vinci.html#ixzz1g8w6PNQO](http://www.brainyquote.com/quotes/authors/l/leonardo_da_vinci.html#ixzz1g8w6PNQO)

The acceptance/rejection of new biotechnologies is **highly dependent on the way we perceive nature**, the way we understand our place in nature, and how these impact upon the way people draw the boundaries between what is natural and unnatural. Result on a broad survey on the acceptance of Green Biotechnology in New Zealand

**Coyle, F., J., Maslin, C., Fairweather, J., F., & Hunt, L., M., (2003)**

Public Understandings of Biotechnology in New Zealand: Nature, Clean Green Image and Spirituality  
Lincoln University. ISSN 1170-7682

ISBN 0-909042-XX-X pp 1-132 Studies in Innovation and Change, Research Report No. 265 November 2003 Canterbury, New Zealand (Report)

[http://www.lincoln.ac.nz/Documents/612\\_RR265FC\\_s2661.pdf](http://www.lincoln.ac.nz/Documents/612_RR265FC_s2661.pdf) AND

<http://www.ask-force.org/web/Discourse/Coyle-Public-Understanding-Biotechnology-2003.pdf>

Downloaded from <http://www.btsblog.tnw.tudelft.nl/>

The blog of the Biotechnology and Society group of the TU Delft

## GM crops: Forget the money, follow the science

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February 28, 2012

**Sebastian Olenyi**



Other commercial links of NGOs may be more surprising:

**Professor Gilles-Éric Séralini** of the university of Caen and his organisation have been invited at least 4 times to the European Parliament in 2010 and 2011 to present their GM critical views, and have been cited numerous times on Euractiv and in political papers. He is founding member and scientific director of the NGO CRIIGEN. His research, which is the backbone of much of CRIIGENs activities, has been supported by the retailers Carrefour and Auchan with their GMO-free product lines, as well as by Sevene Pharma, which commercialises products claiming to detoxify the body from toxic residues linked to GM crops[x]. Also Anti-GM events are frequently sponsored by companies, especially food retailers and organic farmers. The European Conference “GMO-Free Europe” was sponsored by food retailer Tegut and by the 1100ha organic farmer Wilmersdorf’s manor .[xi] Tegut, along with major organic farmer Herrmannsdorfer Landwerkstätten and others also sponsor the NGO Testbiotech of **Ex-Greenpeace campaigner Christoph Then**[xii].

[x] <http://www.sevenepharma.com/actu-page.php?id=1>

[xi] <http://www.gmo-free-regions.org/conference2010/sponsors.html>

[xii] [http://www.testbiotech.de/sites/default/files/Jahresbericht%202010\\_public.pdf](http://www.testbiotech.de/sites/default/files/Jahresbericht%202010_public.pdf)



# IN THE NAME OF NATURE

What drives environmental activists to fire-bomb laboratories?

**Emma Marris** investigates a radical fringe of the US green movement.

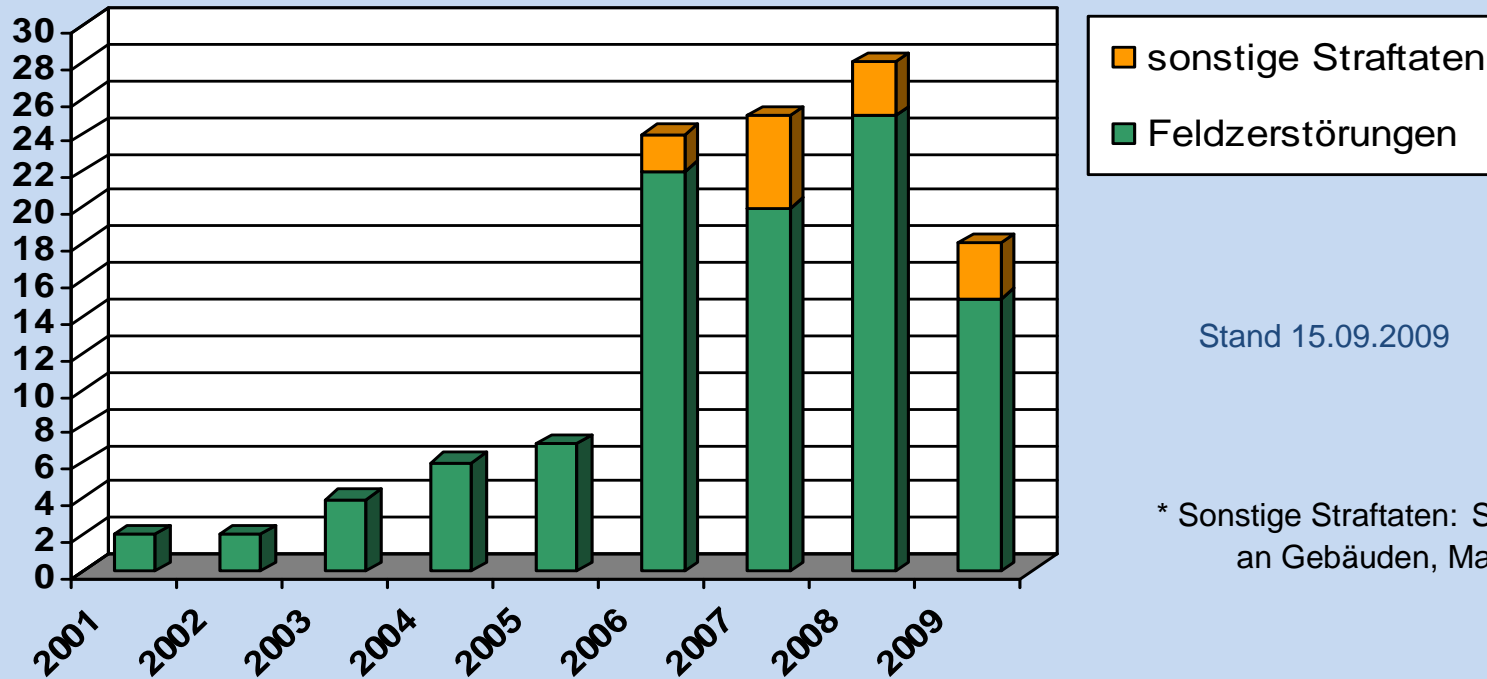
**Marris, E. (2006)**

Environmental activism: In the name of nature. *Nature*, 443, 7111, pp 498-501

<http://dx.doi.org/10.1038/443498a> AND <http://www.botanischergarten.ch/Discourse/Marris-In-the-Name-of-Nature-2006.pdf>

# Field Destructions 2001 to 2009 in Germany

(No of field destructions in DE: other criminal actions in orange, field destructions in green)



Stand 15.09.2009

\* Sonstige Straftaten: Sachbeschädigung an Gebäuden, Maschinen, etc.

The opponents of GM crops have lost their compass and their arguments, they do not shy away from violence anymore, also Greenpeace is involved in violent activities

## Da Silva, W. (2011)

In Focus: the sad, sad demise of Greenpeace In Cosmos, Vol. Thursday, July 14, 2011. About Luna Media Pty Ltd, the boutique publishing company behind COSMOS, Sidney, Australia <http://www.vision6.com.au/em/mail/view.php?id=1786158080&a=8123&k=998b861> AND <http://www.cosmosmagazine.com/blog/4523/the-sad-sad-demise-greenpeace> AND <http://www.ask-force.org/web/Field-Destruction/Da-Silva-Sad-Demise-Greenpeace-COSMOS-20110715.pdf>

## Kuntz, M. (2011)

Academic and governmental research on GMOs has been the target of numerous acts of vandalism in Europe. In OGM, environnement, santé et politique. Prof. Marcel Kuntz, Grenoble <http://www.marcel-kuntz-ogm.fr/article-news-55055856.html>, news in English, French and Spanish AND <http://ddata.over-blog.com/xxxyyy/1/39/38/37/public-research-vandalized.pdf> AND <http://www.marcel-kuntz-ogm.fr/article-news-55055856.html> AND <http://www.ask-force.org/web/Field-Destruction/Kuntz-Public-Government-Research-Vandalism-Europe-2011.pdf>

Latest Press Echo in Germany.

Greenpeace very successful, within Germany, also called the “Eco-Vatican”

95 voluntary groups, 565000 contributing members  
46.7 million Euros income in 2010

Polls: 61 % of the German citizens trust Greenpeace as a reliable lobby group fighting for the environment

30 years anniversary, among the congratulating:  
Chancellor Merkel, Cardinal Lehmann, Shell company

<http://www.brandeins.de/archiv/magazin/grossorganisation/artikel/der-oeko-vatikan.html>





Help Fundamentalists,  
Donate Brain



# **Moral Self-Licensing:**

Merritt et al., 2010 describe with accuracy, how psychological processes can lead over moral self licensing to freeing persons to be bad, with the original intention to be good.

**Merritt, A.C., Effron, D.A., & Monin, B. (2010)**

Moral Self-Licensing: When Being Good Frees Us to Be Bad. *Social and Personality Psychology Compass*, 4, 5, pp 344-357

<http://www.ask-force.org/web/Fundamentalists/Merritt-Moral-Self-Licensing-2010.pdf>

# Professional Framing

(Herring, 2008):

Social framing of transgenic crops as ‘unnatural’ and ‘anti-developmental’ has obscured variations that matter biologically. Regardless of trait, genetic event or cultivar, all products of agricultural rDNA technology have been lumped together in one ominous category: GMOs. GMOs in turn were framed as incompatible with other plausible frames — sustainability and development.

**Herring, R.J. (2008)**

Opposition to transgenic technologies: ideology, interests and collective action frames. *Nature Reviews Genetics*, 9, 6, pp 458-463

<http://www.ask-force.org/web/Regulation/Herring-Opposition-Review-2008.pdf>



# Opposition to Genetic Engineering Is often combined With creationism

Spoof:  
Kansas *outlaws* practice of evolution

"From now on, the streets, forests, plains, and rivers of Kansas will be safe from the godless practice of evolution, and species will be able to procreate without deviating from God's intended design," said Bob Bethell, a member of the state House of Representatives. "This is about protecting the integrity of all creation."

## Urban Myth

Example 2: Genetic Engineering is fundamentally different from Natural Mutation

**Wrong:**

Natural Mutation and Transgenesis are identical on the molecular level

Interestingly, naturally occurring molecular evolution, i.e. the spontaneous generation of genetic variants has been seen to follow exactly the same three strategies as those used in genetic engineering<sup>14</sup>. These three strategies are **(after W. Arber, Nobel Laureate 1978)**

**(a) small local changes in the nucleotide sequences,**

**(b) internal reshuffling of genomic DNA segments, and**

**(c) acquisition of usually rather small segments of DNA from another type of organism by horizontal gene transfer.**

**Arber, W. (2002)**

Roots, strategies and prospects of functional genomics. *Current Science*, 83, 7, pp 826-828

<http://www.botanischergarten.ch/Mutations/Arber-Comparison-2002.pdf>

**Arber, W. (2010)**

Genetic engineering compared to natural genetic variations. *New Biotechnology*, 27, 5, pp 517-521

<http://www.ask-force.org/web/Vatican-PAS-Studyweek-Elsevier-publ-20101130/Arber-Werner-PAS-Genetic-Engineering-Compared-20101130-publ.pdf>



# Recent publications demonstrate, that **transgenesis has less impact on the transcriptome** of the crop than traditional breeding

**Batista, R. & Oliveira, M. (2010)**

Plant natural variability may affect safety assessment data. *Regulatory Toxicology and Pharmacology*, 58, 3, pp S8-S12  
<http://www.ask-force.org/web/Genomics/Batista-Plant-Natural-Variability-2010.pdf>

**Batista, R. & Oliveira, M.M. (2009)**

Facts and fiction of genetically engineered food. *Trends in Biotechnology*, 27, 5, pp 277-286  
<http://www.ask-force.org/web/Food/Batista-Facts-Fiction-GM-Food-2010.pdf>

**Batista, R., Saibo, N., Lourenco, T., & Oliveira, M.M. (2008)**

Microarray analyses reveal that plant mutagenesis may induce more transcriptomic changes than transgene insertion. *Proceedings of the National Academy of Sciences of the United States of America*, 105, 9, pp 3640-3645  
<http://www.botanischergarten.ch/Genomics/Batista-Microarray-Analysis-2008.pdf> AND <http://www.botanischergarten.ch/Genomics/Transgenesis-Comparison-Slides.pdf> AND <http://www.botanischergarten.ch/Genomics/Transgenesis-Comparison-Slides.ppt>

**Baudo, M.M., Lyons, R., Powers, S., Pastori, G.M., Edwards, K.J., Holdsworth, M.J., & Shewry, P.R. (2006)**

Transgenesis has less impact on the transcriptome of wheat grain than conventional breeding. *Plant Biotechnology Journal*, 4, 4, pp 369-380  
<http://www.botanischergarten.ch/Organic/Baudo-Impact-2006.pdf> AND <http://www.botanischergarten.ch/Genomics/Transgenesis-Comparison-Slides.pdf> AND <http://www.botanischergarten.ch/Genomics/Transgenesis-Comparison-Slides.ppt>

**Baudo, M.M., Powers, S.J., Mitchell, R.A.C., & Shewry, P.R. (2009)**

Establishing Substantial Equivalence: Transcriptomics. *In Methods in Molecular Biology, Transgenic Wheat, Barley and Oats, (eds H.D. Jones & P.R. Shewry), Vol. 478, pp. 247-272. Humana Press, a part of Springer Science + Business Media, LLC 2009* <Go to  
<http://www.botanischergarten.ch/Genomics/Baudo-Establishing-Substantial-Equivalence-2009.pdf>

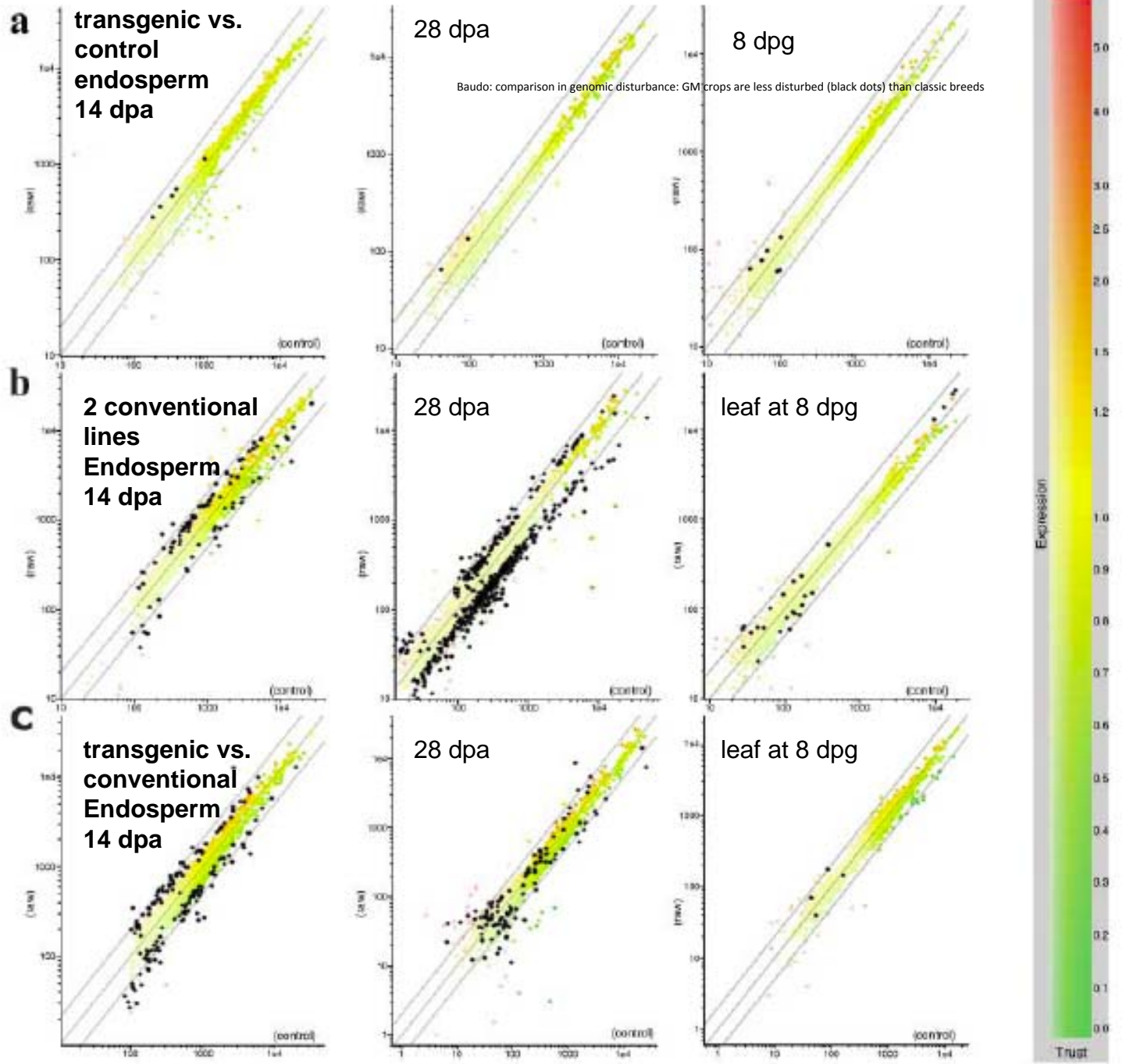
**Coll, A., Nadal, A., Collado, R., Capellades, G., Messeguer, J., Melé, E., Palau-del-màs, M., & Pla, M. (2009)**

Gene expression profiles of MON810 and comparable non-GM maize varieties cultured in the field are more similar than are those of conventional lines. *Transgenic Research*, 18, 5, pp 801-808  
<http://www.botanischergarten.ch/Genomics/Coll-Gene-Expression-Profiles-Comparable-2009.pdf>

**Shewry, P.R., Baudo, M., Lovegrove, A., & Powers, S. (2007)**

Are GM and conventionally bred cereals really different? *Trends in Food Science & Technology*, 18, 4, pp 201-209  
<http://www.botanischergarten.ch/Wheat/Shewry-Are-GM-Convent-Cereals-different-2007.pdf>

# Scatter plot representation of transcriptome comparisons, Baudo et al. 2006



Baudo, M.M., Lyons, R., Powers, S., Pastori, G.M., Edwards, K.J., Holdsworth, M.J., & Shewry, P.R. (2006) Transgenesis Has Less Impact on the Transcriptome of Wheat Grain Than Conventional Breeding. *Plant Biotechnology Journal*, 4, 4, pp 369-380

<http://www.botanischergarten.ch/Organic/Baudo-Impact-2006.pdf>

Shewry, P.R. & Jones, H.D. (2005)

Transgenic Wheat: Where Do We Stand after the First 12 Years? *Annals of Applied Biology*, 147, 1, pp 1-14

<http://www.botanischergarten.ch/Organic/Shewry-Performance-2006.pdf>

# Scientifically incorrect molecular concepts in Organic Farming

Intrinsic Value in organic plant breeding questionable

## Concepts of Intrinsic Value and Integrity of Plants in Organic Plant Breeding and Propagation

E. T. Lammerts van Bueren,\* P. C. Struik, M. Tiemens-Hulscher, and E. Jacobsen

van Bueren, E.T.L., Struik, P.C., Tiemens-Hulscher, M., & Jacobsen, E. (2003)

Concepts of intrinsic value and integrity of plants in organic plant breeding and propagation.

Crop Science, 43, 6, pp 1922-1929

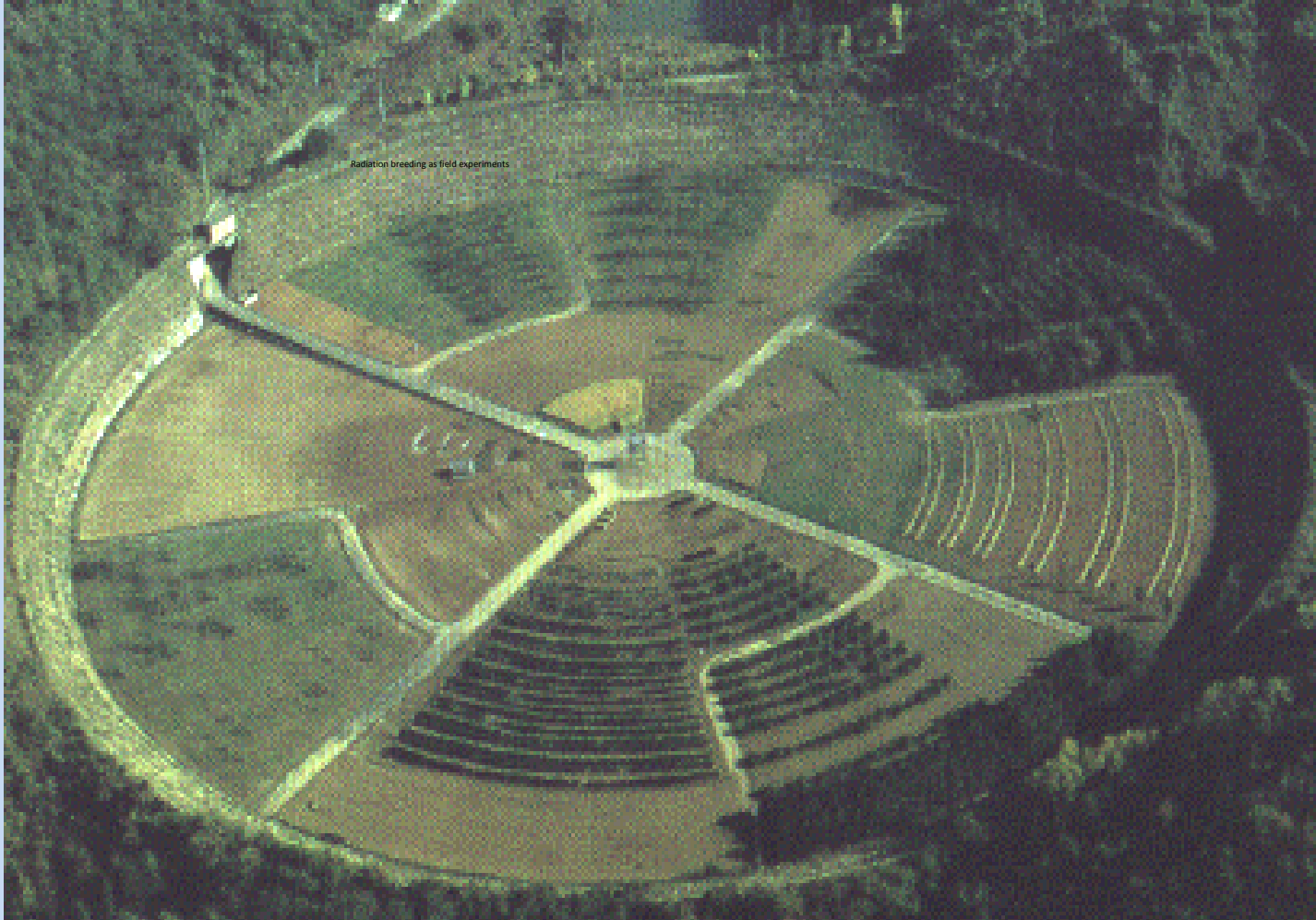
<http://www.botanischergarten.ch/Organic/van-Bueren-Organicbreeding.pdf>

**The natural approach taken by organic agriculture obviates the use of synthetic agrochemicals and emphasizes farming in accordance with agroecological principles. Also implicit in this approach is an appreciation for the *integrity* of living farm organisms, with the integrity being evaluated from a *biocentric* perspective. The ethical value assigned to integrity of organisms has challenged us to develop criteria for evaluating both integrity and breeding techniques. For cultivated plants, integrity refers to their inherent nature, their wholeness, completeness, species-specific characteristics, and their being in balance with their (organically farmed) environment. We evaluate integrity using criteria derived from four different perspectives: *integrity of life*, *plant-specific integrity*, *genotypic integrity*, and *phenotypic integrity*.**

# Gamma Field for radiation breeding

100m  
radius

89 TBq  
Co-60  
source at  
the center  
Shielding  
dike 8m  
high



Better  
spaghettis, whisky  
1800 new plants



Institute of Radiation  
Breeding  
Ibaraki-ken, JAPAN  
<http://www.irb.affrc.go.jp/>

Reuters, May 10, 2010

UN's International Atomic Energy Agency since 1963, 2,252 new plant varieties, *including Italian durum wheat*, have been created using radioactive substances such as cobalt and X-rays.

70% of the crops under cultivation worldwide are radiation mutation varieties

Charles Margulis of Greenpeace USA:

"But now they tell us that scientists have been artificially hybridizing plants since the 1960s. That's, like, really uncool."



## **Radiation Mutation old to plant breeders, new to Activists: caused unjustified panics ca. 1960**

Activists, supported by Jane Rissler, called for a ban, since those irradiated varieties have never been tested for food safety, which would have wiped out 70% of the food products on shelves.

Rissler:

“Compared to these plants, genetically modified food is about as dangerous as a one-legged man in an ass-kicking contest.”

But excellent repair mechanisms working like zippers are reducing radiation damage considerably

And worldwide there has been no correlation established between radiation mutation and negative food safety facts.



# FRANKENSTEIN FARFALLE

COTTURA 10 MINUTI



Scott Pollock

Durum Wheat, Triticum durum: all major breeds have gone through massive and imprecise radiation breeding, but with important success  
**unnecessary fearmongering**





European safety attitude: a problem for many countries in the developing world

European Safety Attitude: let not the Europeans decide about Biosafety in Africa and the Near East, do your own safety assessment

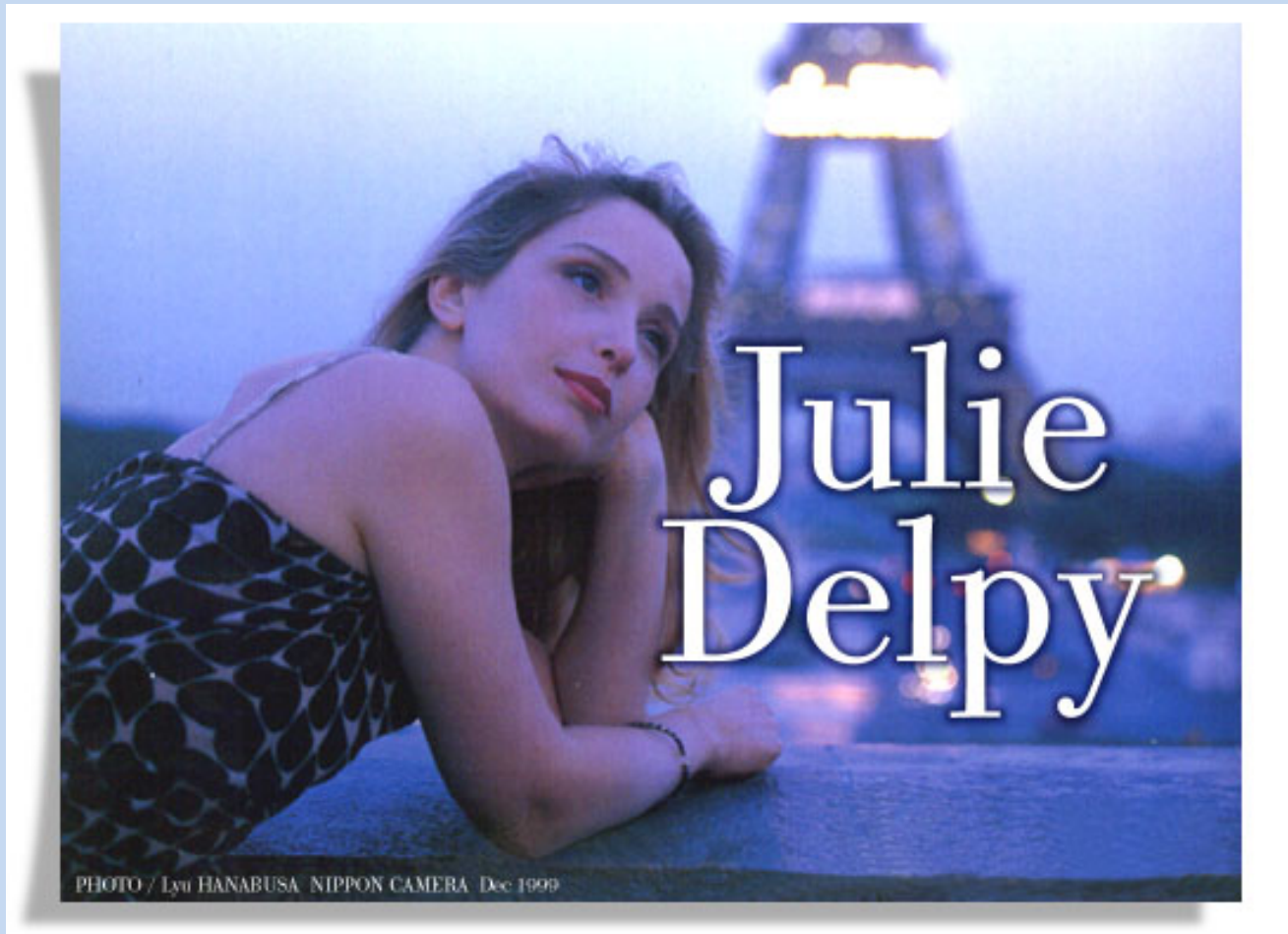


# European Biosafety and the Cartagena Protocol

[www.strangevehicles.com](http://www.strangevehicles.com)



“I eat organic food and drink only green tea—  
gallons of it when I’m writing.  
**I smoke cigarettes, but organic ones”**



Discussing her “healthy” lifestyle in Organic Style magazine March 2005.







Crab-Rhino

<http://seawayblog.blogspot.com/2008/01/chimeras-of-digital-age.html>  
brawlsnapshots.com

## Urban Myth

Example 3: Organic Farming and Modern Agriculture including Genetic Engineering cannot go together



# Why high tech farmers should adopt Organic management

## Features

### Why farming with high tech methods should integrate elements of organic agriculture

**Klaus Ammann**, klaus.ammann@ips.unibe.ch

In the previous article [Ammann, K. (2008) Feature: integrated farming: why organic farmers should use transgenic crops. *New Biotechnol.* 25, 101–107], in a plea for the introduction of transgenic crops into organic and integrated farming, it was announced that the complementary topic, namely that high tech farmers should integrate elements of organic agriculture, will be a follow up. Some selected arguments for such a view are summarised here. Basically, they comprise a differentiated view on agro-biodiversity outside the field of production; landscape management methods to enhance biodiversity levels. Both elements are compatible with basic ideas of organic farming. First, Precision Farming is given as one example of the many ways to support agricultural production through high technology, with the aim of reducing energy input, maintaining excellent soil conditions and enhancing yield. It is clear from this analysis that modern agriculture and certain elements of organic-integrated agriculture are compatible. There are sectors of high tech farming, such as the introduction of a better recycling scheme and also a better focus on socio-economic aspects, which need to be taken up seriously from organic-integrated farming, a system which puts a lot of emphasis on those elements and for which important research data are available. In the final part a new concept of dynamic sustainability is presented.

as they fit into organic farming systems they can help to control pests and weeds in an ecological way and at the same time secure better yields and higher agricultural production. In a short outlook, it was also mentioned that agricultural biodiversity needs a subtle and balanced view and conventional agriculture should take up more ecological thoughts and strategies. Clearly, traditional knowledge is still an unknown reservoir of ecological wisdom, while social networking structures are also, in many cases of modern agriculture, a desideratum for many reasons.

The complementary text here was announced in the conclusions. This time we ask the question of whether farming with transgenic crops should adopt some of the organic/ecological production strategies. The answer will be similarly differentiated as in the previous article.

#### **Concepts of farming with high technology methods: the example of Precision Farming**

There are hundreds of ways to practise farming with high technology methods, just as there are innumerable ways to practise ecological and organic farming. It is not the aim of this article to give a complete overview of modern farming methods, but rather we concentrate here again on giving a comparison of farming with organic/ecological methods and farming with the use of high technology applications, including transgenic crops. Again the aim will be to reduce the contrasts, often exaggerated and driven by

Ammann, K. (2008)  
Feature: Integrated farming: Why organic farmers should use transgenic crops, open source citations. *New Biotechnology*, 25, 2, pp 101 - 107

<http://www.botanischergarten.ch/NewBiotech/Ammann-Opinion-Integrated-Farming-20080825-names-links-edited.pdf>

Ammann, K. (2009)  
Feature: Why farming with high tech methods should integrate elements of organic agriculture. accepted, corrected proof, open links. *New Biotechnology*, 4, pp

<http://www.botanischergarten.ch/NewBiotech/Integrated-Farming-Biotech-Org-20090803-openlink.pdf>

"Ronald and Adamchak's clear, rational approach is refreshing, and the balance they present is sorely needed in our increasingly polarized world."

—*Science*

# Tomorrow's Table



**Organic  
Farming,  
Genetics,  
and the  
Future of  
Food**

**Pamela C.  
RONALD**

**&**

**Raoul W.  
ADAMCHAK**



Ronald, P.C. & Adamchak, R.W. (2008)  
Tomorrow's Table: Organic Farming,  
Genetics, and the Future of Food Oxford  
University Press, USA (April 18, 2008) IS:  
ISBN-10: 0195301757 ISBN-13: 978-  
0195301755 pp 232

Book review by J. Gressel 2009

<http://www.botanischergarten.ch/Gressel-Book-Ronald-2009.pdf>



Amish farmers in biotech-debate: subsequent partial adoption of transgenic crops: 1999, see:

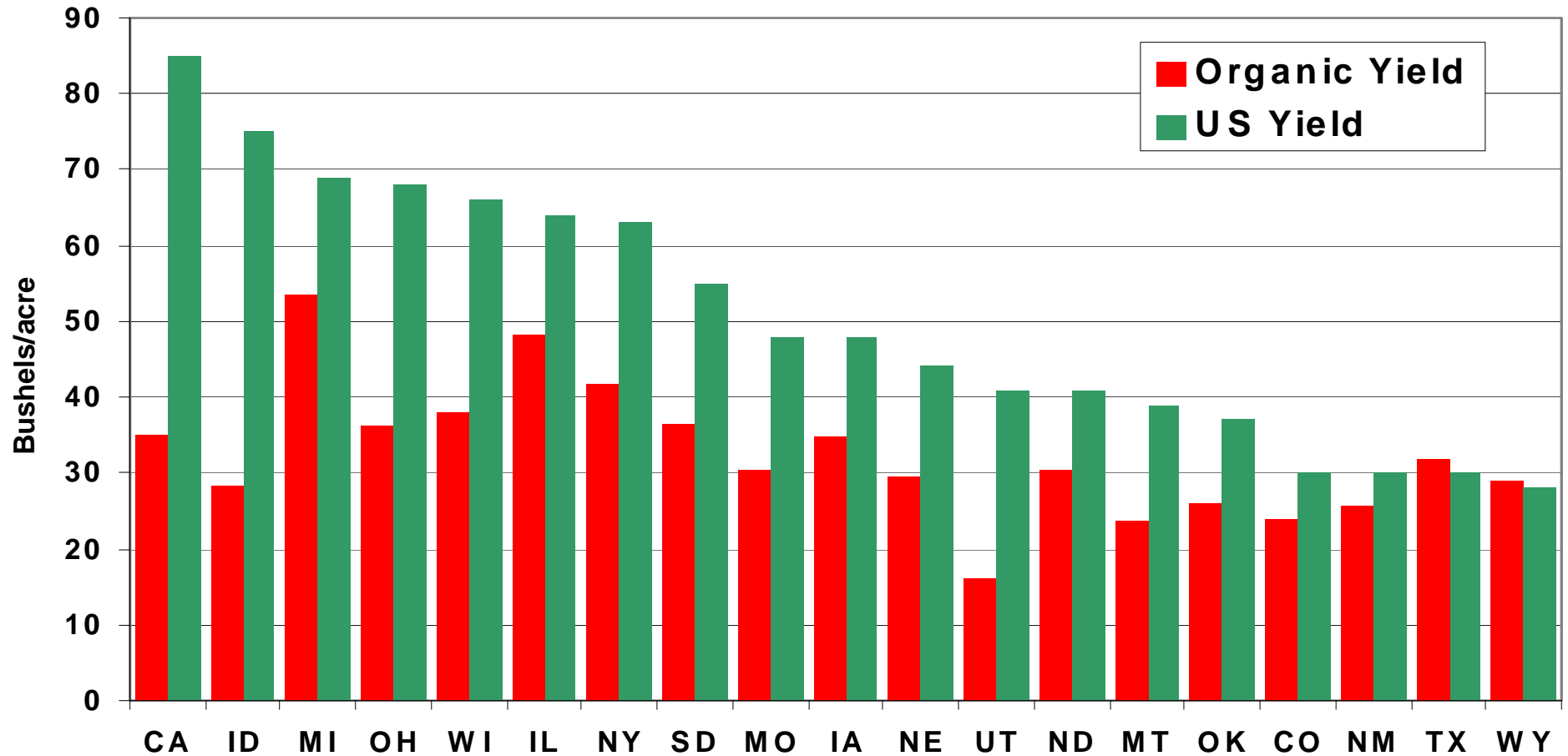
[http://www.ifpri.org/2020conference/PDF/summary\\_ammann.pdf](http://www.ifpri.org/2020conference/PDF/summary_ammann.pdf)





Bauer de Jonghe in Holland, produziert Gemüse im Bio-Standard ohne Pestizide  
Foto Claus Lange, Text Michael Miersch Weltwoche 06 2003

# Winter Wheat



Organic Winter Wheat represented 0.8% of 2008 acres but only 0.5% of total production 100% conversion to Organic would have required 10.4MM additional acres, a 49% increase

## Savage, S.D. (2008)

A Detailed Analysis of US Organic Crops. (publ. Steve Savage) (Audio-Visual Material)

<http://www.ask-force.org/web/Organic/Savage-Detailed-Analysis-US-Organic-2008.ppt> AND <http://www.ask-force.org/web/Organic/Savage-Detailed-Analysis-US-Organic-2008.pdf> see also [Applied Mythology](http://appliedmythology.blogspot.com)

<http://appliedmythology.blogspot.com>



# Is it **ORGANIC?**



## **Mischa Popoff**

The inside story of who destroyed the organic industry, turned it into a socialist movement and made millions in the process.

And

A comprehensive history of farming, warfare and Western civilization from 1645 to the present.

The inside story of who destroyed the organic industry, turned it into a socialist movement and made million\$ in the process, and a comprehensive history of farming, warfare and Western civilization from 1645 to the present.

[http://www.lulu.com/product/12468177?cid=092110\\_en\\_email\\_FALLREAD305](http://www.lulu.com/product/12468177?cid=092110_en_email_FALLREAD305)

### **Popov, M. (2010)**

Is it Organic? The inside story of who destroyed the organic industry, turned it into a socialist movement and made million\$ in the process Polyphase Communication, USA, www.isitorganic.ca, Osoyoos, British Columbia, IS: 978-0-557-54033-4, 978-0-557-54886-6, pp 593

<http://www.ask-force.org/web/Organic/Popoff-isit-Organic-Full-MS-2010.pdf>

# Coli outbreak facts linked to organic farming:

- **> 60 deaths, thousands of patients with destroyed kidneys**
- New Coli strain of human origin
- Clear correlation to fertilizing with liquid manure
- Persistence of new Coli in soil for months,
- Persistence not only on surfaces, but also inside the cultivars
- Remedy: Only cooking and irradiation are safe
- Organic lobby still denies officially the connection
- The press is not reporting truthfully about the risks

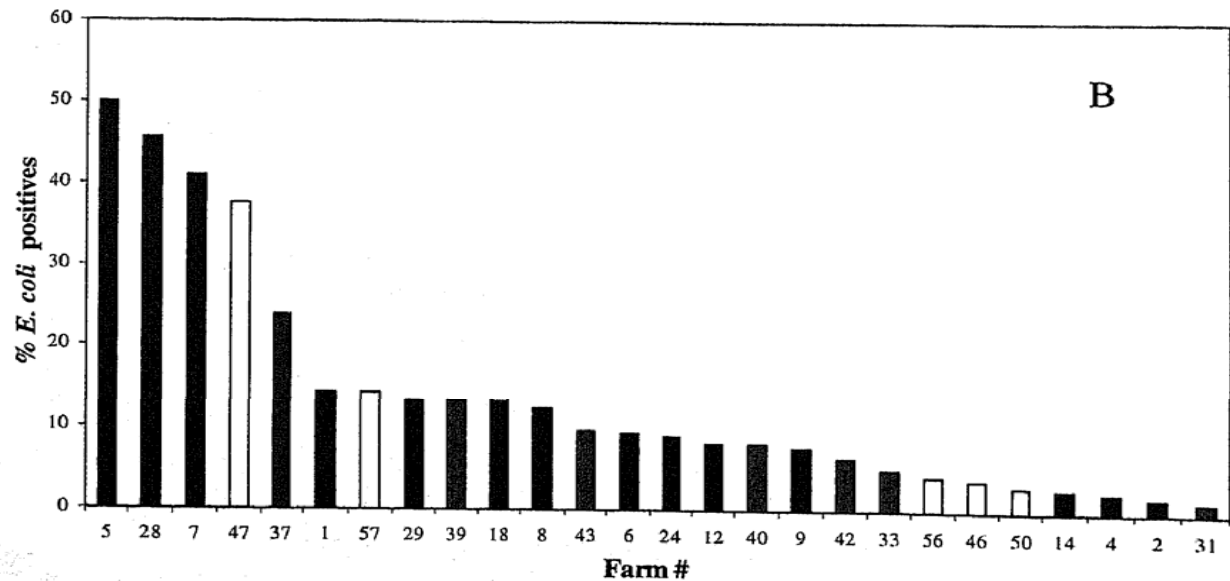
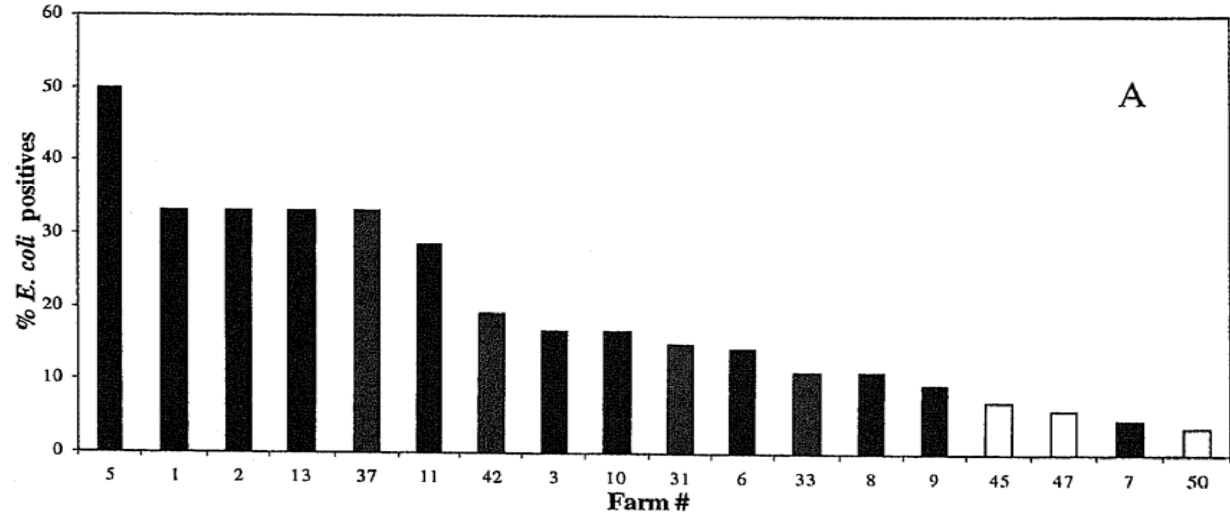
This analysis is based on a manuscript draft by K. Ammann:

**Ammann, K. (2011)**

Sproutbreak, Outbreak of Escherichia Coli O104-H4 in Northern Germany pp (Manuscript)  
<http://www.ask-force.org/web/Escherichia/Ammann-Manuscript-EHEC-20110707.pdf> AND  
slides <http://www.ask-force.org/web/Escherichia/EHEC-Sproutbreak-Ammann-20110629.pdf>

**Imagine, if there would be 1 dead person with a lead to GM crops:  
this would be the End of genetic engineering in crops worldwide....**

FIGURE 1. Prevalence of *E. coli* on semiorganic (■), organic (▒), and conventional (□) farms from which at least one contaminated sample was collected in 2003 (A) and 2004 (B).



Prevalence of *E. coli* on Semiorganic, organic and Conventional farms from Which at least one contaminated sample was collected in  
 A 2003  
 B 2004

Mukherjee, A., Speh, D., Jones, A.T., Buesing, K.M., & Diez-Gonzalez, F. (2006)

Longitudinal microbiological survey of fresh produce grown by farmers in the upper midwest. *Journal of Food Protection*, 69, 8, pp 1928-1936

<http://www.botanischergarten.ch/Organic/Mukherjee-Longitudinal-MicrobiolSurvey-2006.pdf>





Für den Dialog

GENE 4 PEACE

nach dem Nein am 7. Juni

# Urban Myth

Example 4: Biotech Crops are detrimental to Biodiversity

**Wrong:**

Many comprehensive field studies demonstrating that biodiversity is protected by those modern crops

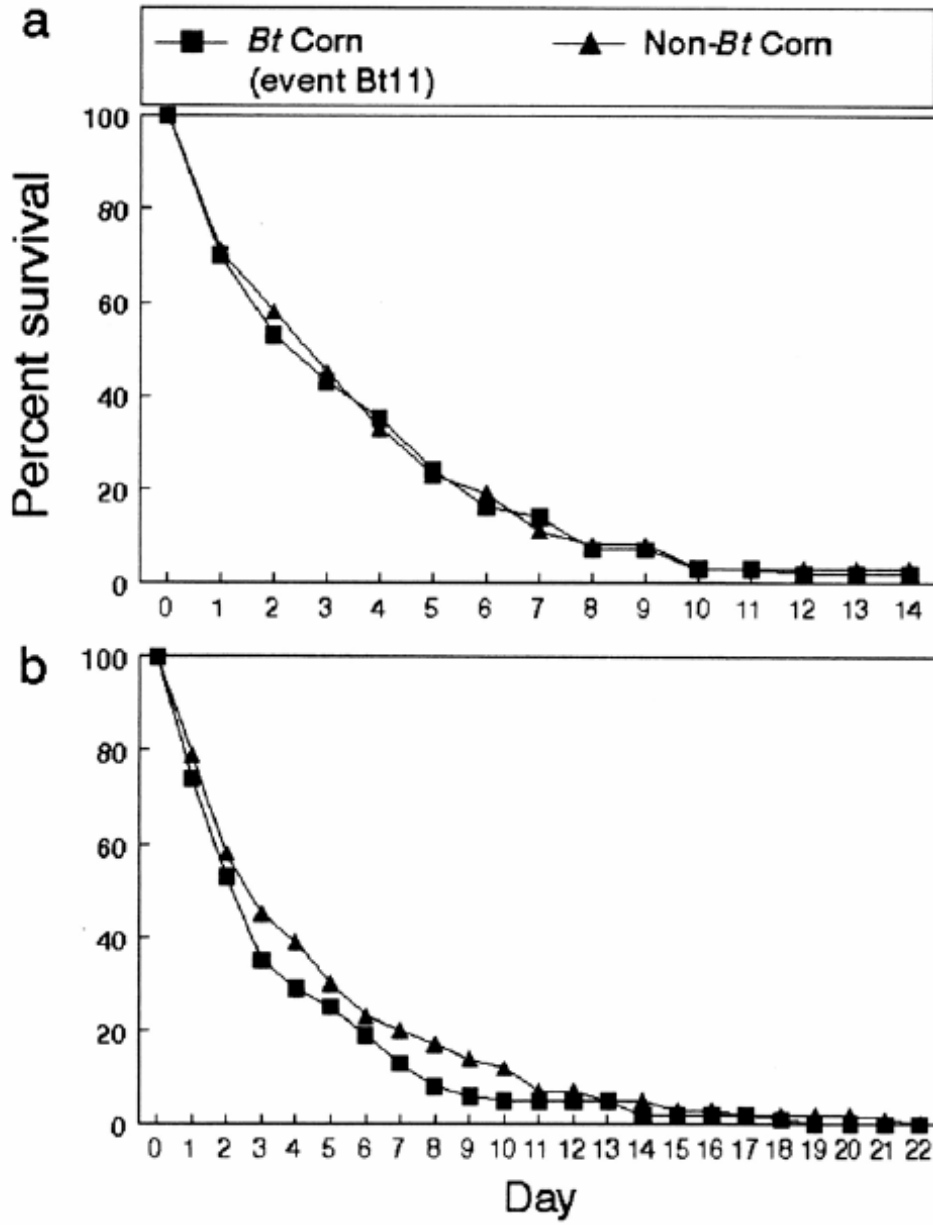
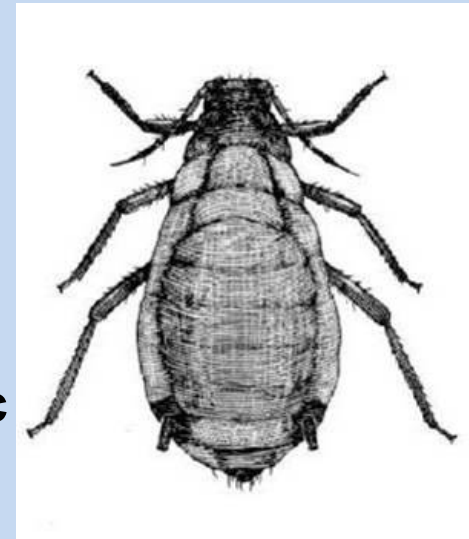
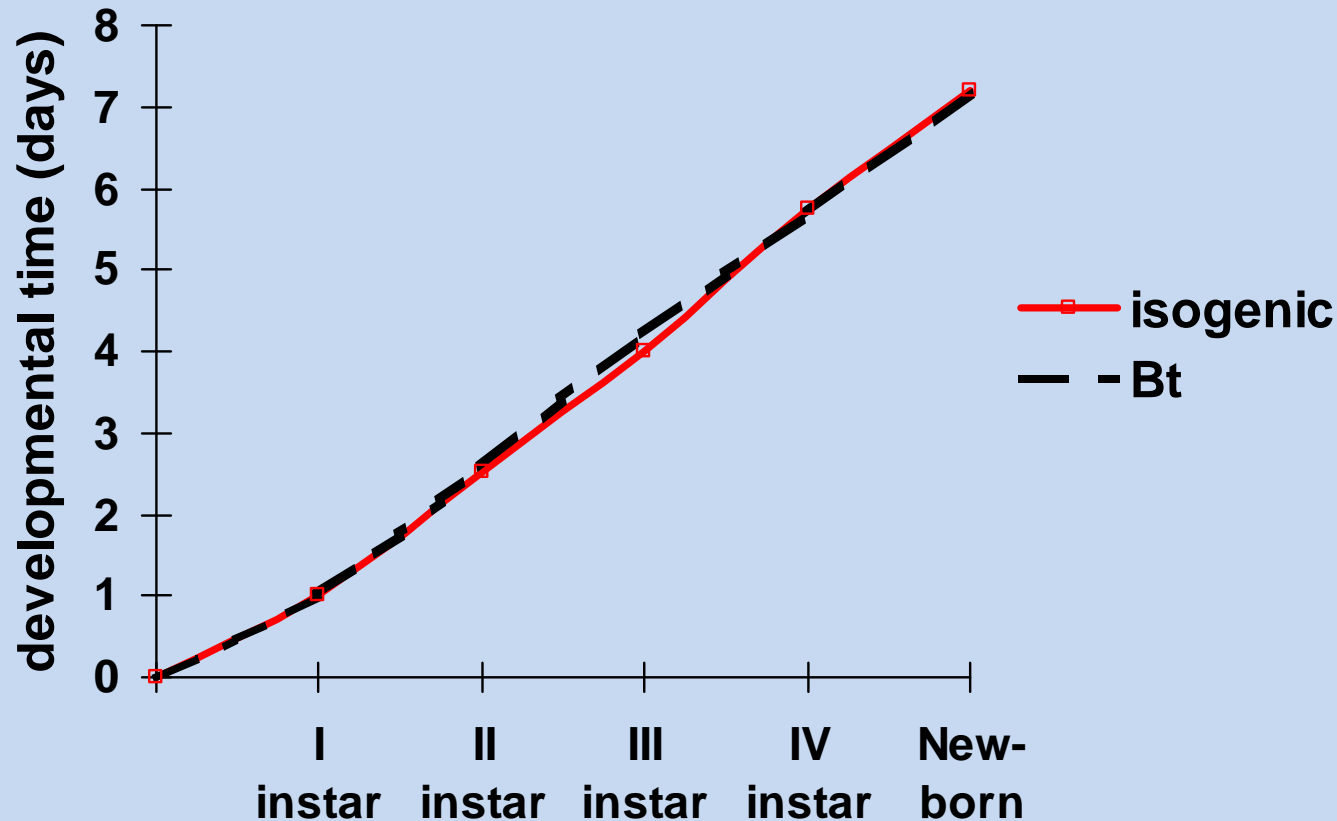


Figure 26: Survival curves for monarch larvae placed in and near *Bt* and non-*Bt* corn fields. (a) Iowa. (b) New York. The survival curves of larvae pooled over the three *Bt* corn sites were not significantly different from those in non-*Bt* (Fig. 13a). In New York, trends in survivorship were also statistically the same for cohorts of larvae feeding for 22 days on milkweeds in *Bt* and non-*Bt* fields (Fig. 13b). (Stanley-Horn et al., 2001)

Sears, M.K., Hellmich, R.L., Stanley-Horn, D.E., Oberhauser, K.S., Pleasants, J.M., Mattila, H.R., Siegfried, B.D., & Dively, G.P. (2001) Impact of *Bt* corn pollen on monarch butterfly populations: A risk assessment. Proceedings of the National Academy of Sciences of the United States of America, 98, 21, pp 11937-11942 <http://www.botanischergarten.ch/Bt/Searsreport-prelim-2000.pdf>

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 of the United States of America, 98, 21, pp 11931-11936 <http://www.pnas.org/cgi/content/full/98/21/11931>

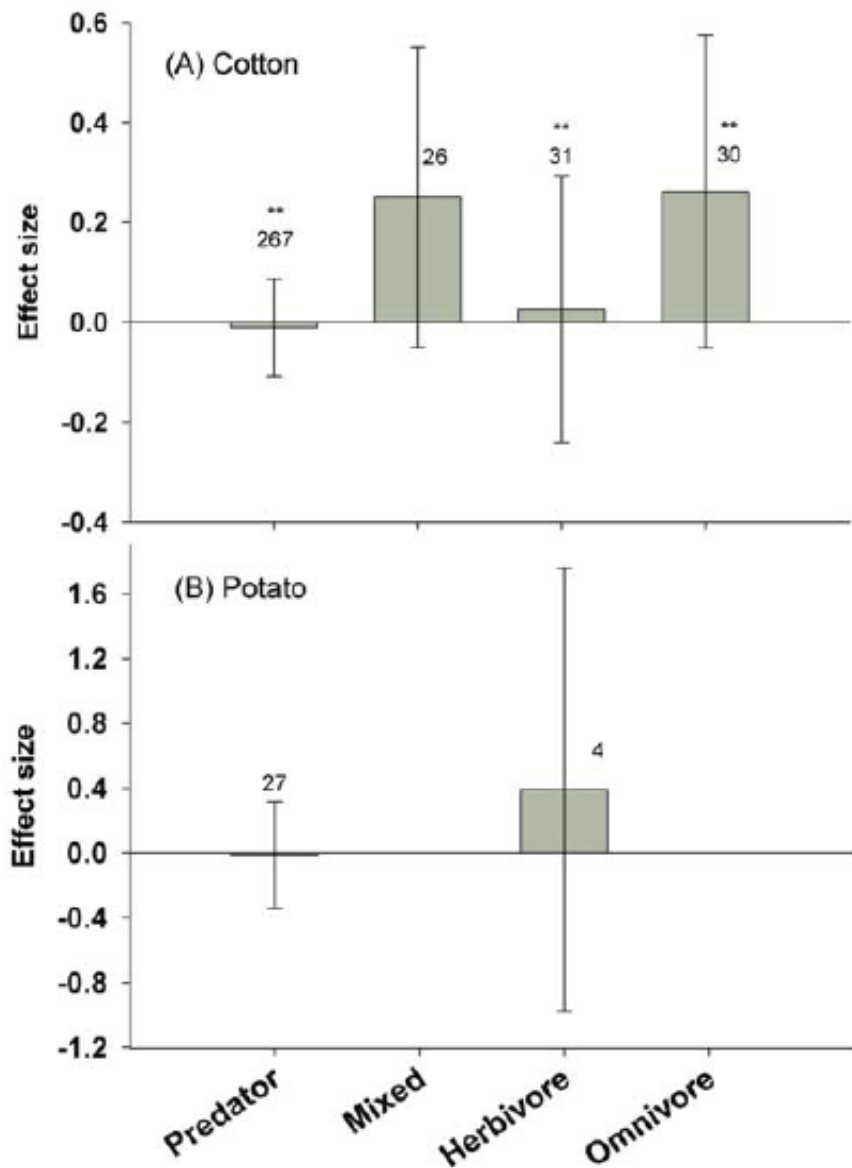
# Averages of two years (1997-1998) of development times (days) of a specific stage for *Rhopalosiphum padi* feeding on transgenic and isogenic corn leaves



*Rhopalosiphum padi*

Lozzia, G., Furlanis, C., Manachini, B., & Rigamonti, I. (1999) Effects of Bt Corn on *Rhopalosiphum Padi* (Rhynchota Aphidiae) and on Its Predator *Chrysoperla Carnea* Stephen (Neuroptera Chrysopidae). *Boll. Zool. Agr. Bachic. Ser. II*, 30, 2, pp 153-164  
<http://www.botanischergarten.ch/Bt/Lozzia-Effects-Bt-1998.pdf>

Lozzia, G.C. (1999) Biodiversity and Structure of Ground Beetle Assemblages (Coleopterae, Carabidae) in Bt Corn and Its Effects on Non Target Insects. *Boll. Zool. Agr. Bachic. Ser. II*, 31, pp 37-58  
<http://www.botanischergarten.ch/Bt/Lozzia-Biodiversity-1999.pdf>



**Conclusions/Significance:** Overall, we find no uniform effects of Bt cotton, maize and potato on the functional guilds of non-target arthropods. Use of and type of insecticides influenced the magnitude and direction of effects; **insecticide effects were much larger than those of Bt crops.**

These meta-analyses underscore the importance of using controls not only to isolate the effects of a Bt crop per se but also to reflect the replacement of existing agricultural practices. Results will provide researchers with information to design more robust experiments and will inform the decisions of diverse stakeholders regarding the safety of transgenic insecticidal crops.

Wolfenbarger, L.L., Naranjo, S.E., Lundgren, J.G., Bitzer, R.J., & Watrud, L.S. (2008)

Bt Crop Effects on Functional Guilds of Non-Target Arthropods: A Meta-Analysis. PLoS ONE, 3, 5, pp e2118  
<http://dx.doi.org/10.1371/journal.pone.0002118> AND  
<http://www.botanischergarten.ch/Bt/LaReesa-Bt-crop-Meta-Analysis-2008.pdf>

**Figure 5. Effect of insecticide-treated Bt crops vs. insecticide-treated non-Bt control field on non-target functional guilds.** Bars denote the 95% confidence intervals, asterisks denote significant heterogeneity in the observed effect sizes among the studies (\* < 0.05, \*\* < 0.01, \*\*\* < 0.001), and Arabic numbers indicate the number of observations included for each functional group.  
 doi:10.1371/journal.pone.0002118.g005













# Urban Myth

Example 5: Genetic Engineering is opposed by major religions

Wrong:

major academic decisions with the churches are taken in favour of modern agriculture



# New BIOTECHNOLOGY

## TRANSGENIC PLANTS FOR FOOD SECURITY IN THE CONTEXT OF DEVELOPMENT



PROCEEDINGS OF A STUDY WEEK OF THE  
PONTIFICAL ACADEMY OF SCIENCES  
Editors: INGO POTRYKUS & KLAUS AMMANN

Official Journal of the EFB



EUROPEAN FEDERATION OF  
BIOTECHNOLOGY

Full bibliography of the open source volume of NEW BIOTECHNOLOGY, Elsevier 27/5, p. 445-718, November 30, 2010

All published papers, statements and conference presentations in:

<http://www.sciencedirect.com/science/issue/43660-2010-999729994-2699796>

It must be understood, that statements by the participants regarding the event do not constitute the opinion of the Vatican or the Pontifical Academy of Sciences.

The official information, beyond any interview, is laid out in the English version of the 'Statement' agreed upon unanimously by all participants

<http://www.ask-force.org/web/PAS-Statement-English.pdf>

and in additional 15 world languages,

see link above For interviews contact Prof. em. Ingo Potrykus [ingo@potrykus.ch](mailto:ingo@potrykus.ch) or Prof. em. Klaus Ammann, [klaus.ammann@ips.unibe.ch](mailto:klaus.ammann@ips.unibe.ch)

or anybody else from the participants list:

<http://www.ask-force.org/web/Participants-List-2010.pdf>



# Transgenic Plants for Food Security in the Context of Development

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The spirit of the participants was inspired by the same approach to technology that Benedict XVI expressed in his new Encyclica, in particular that 'Technology is the objective side of human action, Cf. John Paul II, Encyclical Letter *Laborem exercens*, 5: loc. cit., 586-589. whose origin and *raison d'être* is found in the subjective element: the worker himself. For this reason, technology is never merely technology. It reveals man and his aspirations towards development, it expresses the inner tension that impels him gradually to overcome material limitations.

**Technology, in this sense, is a response to God's command to till and to keep the land (cf. Gen 2:15) that he has entrusted to humanity**, and it must serve to reinforce the covenant between human beings and the environment, a covenant that should mirror God's creative love'. *Caritas in veritate*, § 69.

Two recent international conferences on the position of Islam towards modern agriculture yielded positive views:

1. The World Halal Forum 2010 (World Halal Forum, 2010) sought to begin discussions on the Islamic stance of Genetically Modified Food.

At the end of the workshop panelists and participants unanimously agreed to the a positive statement

2. Sharia Compliance conference 2010 came to the same positive conclusions

**World Halal Forum (2010)**

GENETICALLY MODIFIED (GM) CROPS & HALAL WORKSHOP REPORT (eds W.H. Forum), pp. 35. World Halal Forum, Kuala Lumpur Convention Center

[www.worldhalalforum.org](http://www.worldhalalforum.org) AND <http://www.ask-force.org/web/Islam/GM-Crops-World-Halal-Forum-Kuala-Lumpur-2010.pdf>

**Sharia Compliance (2010)**

International Workshop for Islamic Scholars: Agribiotechnology: Shariah Compliance, pp. 7. Members of the Organization of the Islamic Conference (OIC)], Traders Hotel, Georgetown, Penang, Malaysia

[http://www.ask-force.org/web/Islam/Shariah-Compliance-Agribiotech-Resolution\\_Final-20101202.pdf](http://www.ask-force.org/web/Islam/Shariah-Compliance-Agribiotech-Resolution_Final-20101202.pdf)

## Urban Myth

Example 6: Food derived from GM crops is unsafe and may be toxic

Wrong:

The overwhelming majority of the peer reviewed publications demonstrates the safety of GM food



ELSEVIER

Contents lists available at SciVerse ScienceDirect

# Food and Chemical Toxicology

journal homepage: [www.elsevier.com/locate/foodchemtox](http://www.elsevier.com/locate/foodchemtox)



## Review

### Assessment of the health impact of GM plant diets in long-term and multigenerational animal feeding trials: A literature review

Chelsea Snell<sup>a</sup>, Aude Bernheim<sup>b</sup>, Jean-Baptiste Bergé<sup>c</sup>, Marcel Kuntz<sup>d</sup>, Gérard Pascal<sup>e</sup>, Alain Paris<sup>f</sup>, Agnès E. Ricroch<sup>b,\*</sup>

<sup>a</sup> *University of Nottingham, School of Biosciences, Sutton Bonington Campus, Loughborough, Leicestershire LE12 5RD, United Kingdom*

<sup>b</sup> *AgroParisTech, 16, rue Claude Bernard, 75231, Paris, Cedex 05, France*

<sup>c</sup> *Anthala, 239, chemin de Saint Claude, 06600 Antibes, France*

<sup>d</sup> *Laboratory Physiologie Cellulaire Végétale, CNRS – Université Joseph Fourier – INRA, Institut de Recherches en Technologies et Sciences pour le Vivant, 38054 Grenoble, Cedex 9, France*

<sup>e</sup> *Le Breuil, 63220 Saint Alyre d'Arlanc, France*

<sup>f</sup> *INRA – Met@risk, AgroParisTech, 16, rue Claude Bernard, 75231 Paris, Cedex 05, France*

**The studies reviewed present evidence to show that GM plants are nutritionally equivalent to their non-GM counterparts and can be safely used in food and feed.**

**Snell, C., Bernheim, A., Berge, J.-B., Kuntz, M., Pascal, G., Paris, A., & Ricroch, A.E. (2012)**

Assessment of the health impact of GM plant diets in long-term and multigenerational animal feeding trials: A literature review. *Food and Chemical Toxicology*, 50, 3–4, pp 1134-1148

<http://www.sciencedirect.com/science/article/pii/S0278691511006399> AND

<http://www.ask-force.org/web/Food/Snell-Assessment-Health-Impct-GM-2012.pdf>

Received: 5 May 2011,

Revised: 15 November 2011,

Accepted: 19 November 2011

Published online in Wiley Online Library

(wileyonlinelibrary.com) DOI 10.1002/jat.2712

# Cytotoxicity on human cells of Cry1Ab and Cry1Ac Bt insecticidal toxins alone or with a glyphosate-based herbicide

R. Mesnage,<sup>a,b</sup> E. Clair,<sup>a,b</sup> S. Gress,<sup>a,b</sup> C. Then,<sup>c</sup> A. Székács<sup>d</sup> and G.-E. Séralini<sup>a,b\*</sup>

**In these results, we argue that modified Bt toxins are not inert on nontarget human cells, and that they can present combined sideeffects with other residues of pesticides specific to GM plants**

Mesnage, R., Clair, E., Gress, S., Then, C., Székács, A., & Séralini, G.E. (2012)

Cytotoxicity on human cells of Cry1Ab and Cry1Ac Bt insecticidal toxins alone or with a glyphosate-based herbicide. *Journal of Applied Toxicology*, pp n/a-n/a

<http://dx.doi.org/10.1002/jat.2712> AND

<http://www.ask-force.org/web/Bt1/Mesnage-Cytotoxicity-Human-Cells-Cry1Ab-Glyphosate-2012.pdf>



Other commercial links of NGOs may be more surprising:

**Professor Gilles-Éric Séralini** of the university of Caen and his organisation have been invited at least 4 times to the European Parliament in 2010 and 2011 to present their GM critical views, and have been cited numerous times on Euractiv and in political papers. He is founding member and scientific director of the NGO CRIIGEN. His research, which is the backbone of much of CRIIGENs activities, has been supported by the retailers Carrefour and Auchan with their GMO-free product lines, as well as by Sevene Pharma, which commercialises products claiming to detoxify the body from toxic residues linked to GM crops[x]. Also Anti-GM events are frequently sponsored by companies, especially food retailers and organic farmers. The European Conference “GMO-Free Europe” was sponsored by food retailer Tegut and by the 1100ha organic farmer Wilmersdorf’s manor .[xi] Tegut, along with major organic farmer Herrmannsdorfer Landwerkstätten and others also sponsor the NGO Testbiotech of **Ex-Greenpeace campaigner Christoph Then**[xii].

[x] <http://www.sevenepharma.com/actu-page.php?id=1>

[xi] <http://www.gmo-free-regions.org/conference2010/sponsors.html>

[xii] [http://www.testbiotech.de/sites/default/files/Jahresbericht%202010\\_public.pdf](http://www.testbiotech.de/sites/default/files/Jahresbericht%202010_public.pdf)

# A controversy re-visited: Is the coccinellid *Adalia bipunctata* adversely affected by Bt toxins?

Angelika Hilbeck\*<sup>1</sup>, Joanna M McMillan<sup>1</sup>, Matthias Meier<sup>2</sup>, Anna Humbel<sup>1</sup>, Juanita Schläpfer-Miller<sup>1</sup>, Miluse Trtikova<sup>1</sup>

<sup>1</sup>Swiss Federal Institute of Technology, Institute of Integrative Biology, Universitätstrasse 16, Zurich 8092, Switzerland

<sup>2</sup>Research Institute of Organic Agriculture (FiBL), Ackerstrasse, Frick 5070, Switzerland

\*Corresponding author: [angelika.hilbeck@env.ethz.ch](mailto:angelika.hilbeck@env.ethz.ch)

## Conclusions:

**The new data corroborates earlier findings that Cry1Ab toxin increases mortality in *A. bipunctata* larvae. It was also shown that the different applied testing protocols explained the contrasting results.**

Hilbeck, A., McMillan, J., Meier, M., Humbel, A., Schläpfer-Miller, J., & Trtikova, M. (2012)

A controversy re-visited: Is the coccinellid *Adalia bipunctata* adversely affected by Bt toxins? *Environmental Sciences Europe*, 24, 1, pp 10

<http://www.enveurope.com/content/24/1/10> AND

<http://www.ask-force.org/web/Bt1/Hilbeck-Controversy-Re-visited-Adalia-2012.pdf> AND <http://www.ask-force.org/web/Bt1/Parrott-Hilbeck-Critique-20120229.pdf>



Dialogue between Evolutionists and Creationists

# discursive model systems approach different kinds of knowledge

**Ammann, K. & Papazova Ammann, B. (2004)**

Factors Influencing Public Policy Development in Agricultural Biotechnology. *In RISK ASSESSMENT OF TRANSGENIC CROPS*. (ed S. Shantaram), Vol. 9, pp. 1552. Wiley and Sons, Hoboken, NJ, USA.

P. Christou & H. Klee: Handbook of Plant Biotechnology,

<http://www.botanischergarten.ch/Wiley/Factors-Discourse-Wiley.pdf>

unfortunately, planning problems in the field of green biotechnology have now evolved into **wicked problems** with complex structures and no obvious causal chains



to respect different kinds of knowledge  
is better than the stakeholder concept

factual knowledge

deontic knowledge

explanatory knowledge

instrumental knowledge

procedural knowledge

conceptual knowledge

traditional knowledge

only those should  
participate

who are  
part of the problem

**Kahane, A. (2004)**

Solving Tough Problems: An Open Way of Talking, Listening, and Creating New Realities Berrett-Koehler Publishers, San Francisco, IS: 1-57675-293-3, 150 p.

[www.bkconnection.com](http://www.bkconnection.com)

Transgenics, Cisgenics, Intragenics,  
Mutagenics, Wide Hybrids,  
Invasive and or Feral Cultivars

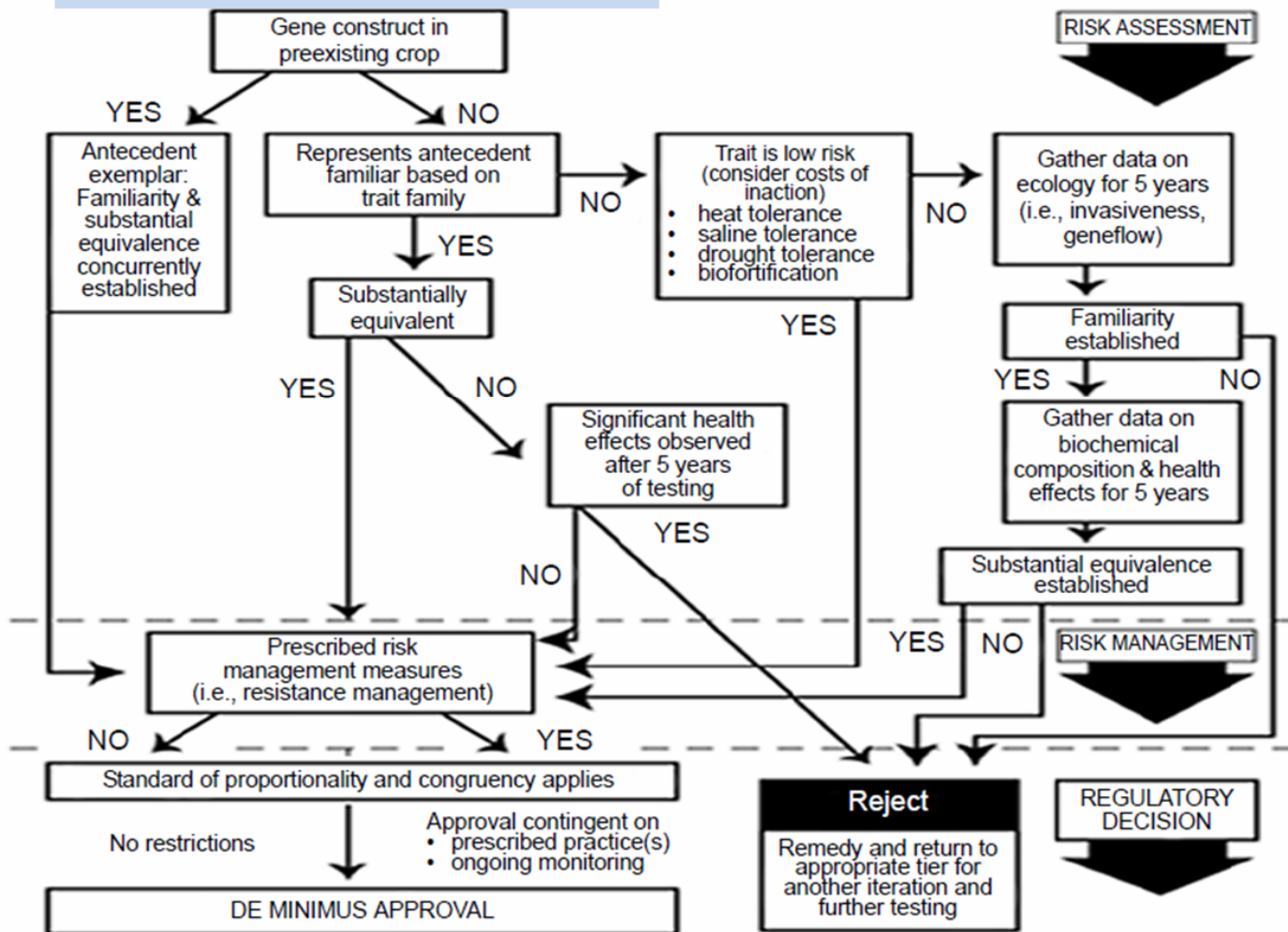


Fig. 21 Same figure as 15, amended from No. 13 and 14, but with the inclusion besides transgenic plants: Cisgenics, Intragenics, Mutagenics (mutated with gamma radiation or chemicals), wide Hybrids and invasive or feral cultivars. After (Durham Tim et al., 2011), amended by K. Ammann 2011. The scheme needs amendment also for the three general risk-levels to be assessed as helping scale.

Durham Tim, Doucet John, & Unruh Snyder Lory (2011)

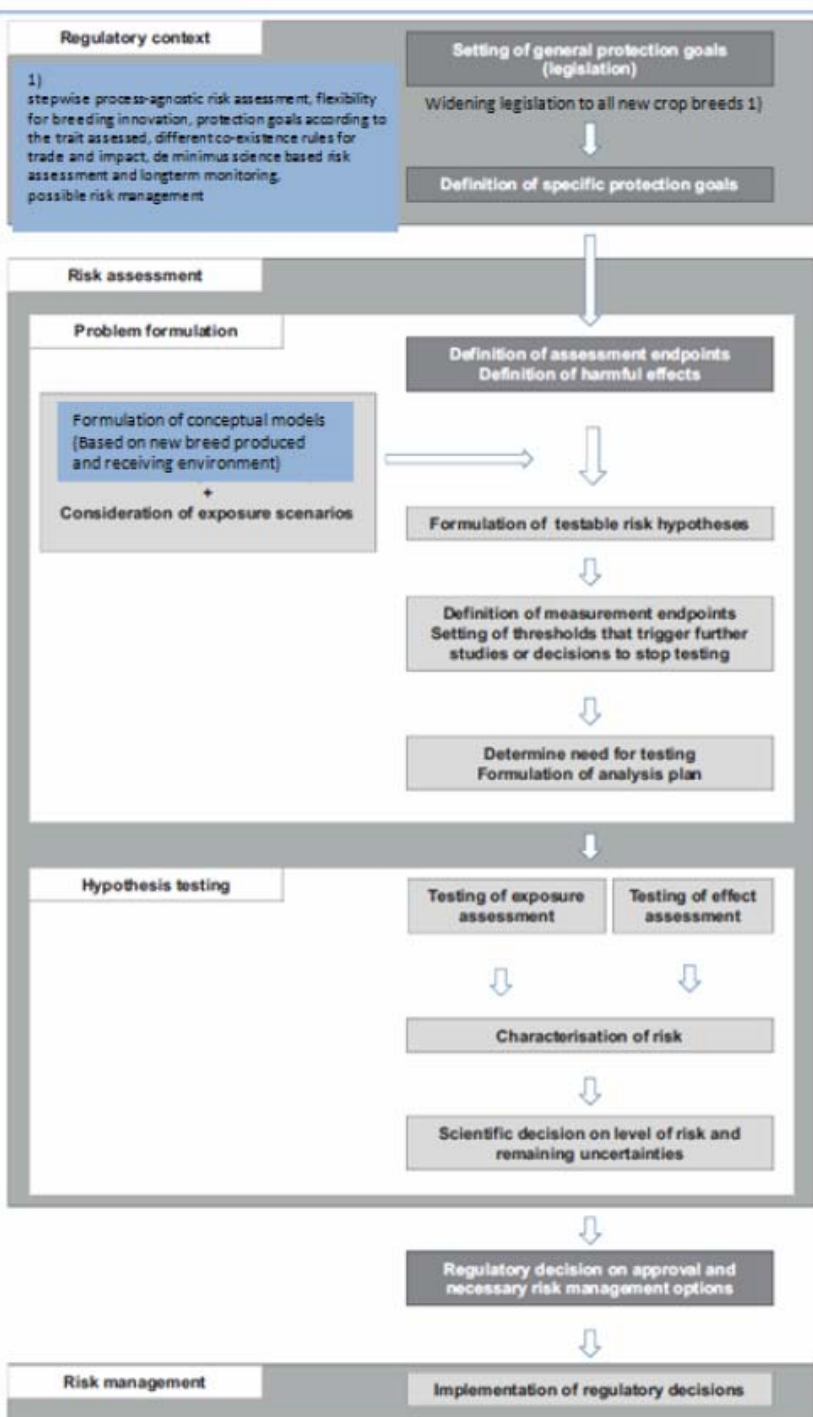
Risk of Regulation or Regulation of Risk? A De Minimus Framework for Genetically Modified Crops. *AgBioForum*, 14, 2, pp 61-70

<http://www.agbioforum.org/v14n2/v14n2a03-durham.pdf> AND <http://www.ask-force.org/web/Regulation/Durham-Risk-Regulation-Regulation-Risk-2011.pdf>

Ammann, K. (20120105)

The GM crop risk-benefit debate: science and socio-economics. *In Springer Encyclopedia of Sustainability Science and Technology, in print (ed Section Editor Paul Christou), pp. 1-149. Springer New York*

<http://www.ask-force.org/web/Sustainability/Ammann-Strategy-GMO-Debate-20120105-opensource.pdf>



**Fig. 22** Schematic diagram representing the main components of the risk analysis of genetically modified crops. Dark shaded boxes depict policy activities that should be carried out by policy-makers or risk managers. Light grey boxes depict science-based activities that are to be conducted by risk assessors (adapted from (EPA, 1998); Nickson, 2008; (Wolt et al., 2010), from Sanvido et al. 2011, amended by K. Ammann, avoiding the Genomic Misconception by introducing a process-agnostic vision, together with the de minimus approach in mind.

**Wolt, J.D., Keese, P., Raybould, A., Fitzpatrick, J.W., Burachik, M., Gray, A., Olin, S.S., Schiemann, J., Sears, M., & Wu, F. (2010)** Problem formulation in the environmental risk assessment for genetically modified plants. *Transgenic Research*, 19, 3, pp 425-436 <Go to ISI>://WOS:000277419000007 AND <http://www.ask-force.org/web/Regulation/Wolt-Problem-Formulation-Environmental-Risk-2010.pdf>

**EPA (1998)**

Guidelines for Ecological Risk Assessment; Notice. Part II Environmental Protection Agency, Federal Register Federal Register, 63, 93, pp p. 26846-26846, 1-176, i-v Appendices A, B. <http://www.ask-force.org/web/Regulation/EPA-Risk-Assessment-Environment-Part-II-1998.pdf> AND <http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=30004XFR.txt>

**Nickson, T.E. (2008)**

Planning Environmental Risk Assessment for Genetically Modified Crops: Problem Formulation for Stress-Tolerant Crops. *Plant Physiology*, 147, pp 494-502 <http://www.botanischergarten.ch/Regulation/Nickson-Planning-Stress-2008.pdf>

**Sanvido, O., Romeis, J.r., Gathmann, A., Gielkens, M., Raybould, A., & Bigler, F. (2011)**

Evaluating environmental risks of genetically modified crops: ecological harm criteria for regulatory decision-making. *Environmental Science & Policy*, 0, pp <http://www.sciencedirect.com/science/article/pii/S1462901111001390> AND <http://www.ask-force.org/web/Regulation/Sanvido-Evaluating-Environmental-Risks-2011.pdf>

## OPINION

# Confronting the Gordian knot

L Val Giddings, Ingo Potrykus, Klaus Ammann & Nina V Fedoroff

Galvanizing plant science in Europe will depend on an overhaul of the tangle of indefensible regulations themselves, not on the advent of new plant breeding technologies that may escape existing rules.



Rachel Carson's *Silent Spring* espouses the application of new biological technologies to address environmental and agricultural challenges facing humanity.  
SOURCE:  
Houghton Mifflin

**Giddings, V., Potrykus, I., Ammann K., & Fedoroff, N. (2012)**

Confronting the Gordian knot, Opinion. *Nature Biotechnology*, 30, 3, pp 208-209

<http://www.ask-force.org/web/Regulation/Giddings-Confronting-Gordian-Knot-2012.pdf>



**create  
an ASK FORCE**

**from pro re active to  
pro active strategy**



What do we need as visionaries: Progress or Development? This is my question today, as I deal with the topic of Biovisionaries here in the Library of Alexandria. I ask this question because I am convinced that we need to build a new culture of questioning. We need a culture orienting itself by authentic questions.

If we cannot befriend these choice-questions with science, it will disengage from the questioners and will not be human science anymore. Thus we need a new humility of thinking – as it has been wonderfully defined by the **German philosopher Heidegger: “The question is the devoutness of thinking.”**

**Dr. phil.  
Biljana Papazov Ammann**

**Neuchâtel, Switzerland**

**Biovision,  
Alexandria 2010**