

Communicating Science

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- What does not work
- What might work

FEWER MOLES

MORE MOLES



SCIENTISTS
ARE BAD;
ACTIVISTS
ARE GOOD



EATING
MEAT
CAUSES
GLOBAL
WARMING



MEAT IS BAD
FOR YOU –
MEATLESS
MONDAY



FARMERS
MISTREAT
ANIMALS



ANTIBIOTIC
USE IN
ANIMAL AG



PINK
SLIME



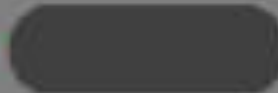
CONVENTIONAL
AGRICULTURE
DESTROYS THE
ENVIRONMENT



GMOs
OMG



ORGANIC
IS BEST



Dorothy, we are not in Kansas anymore



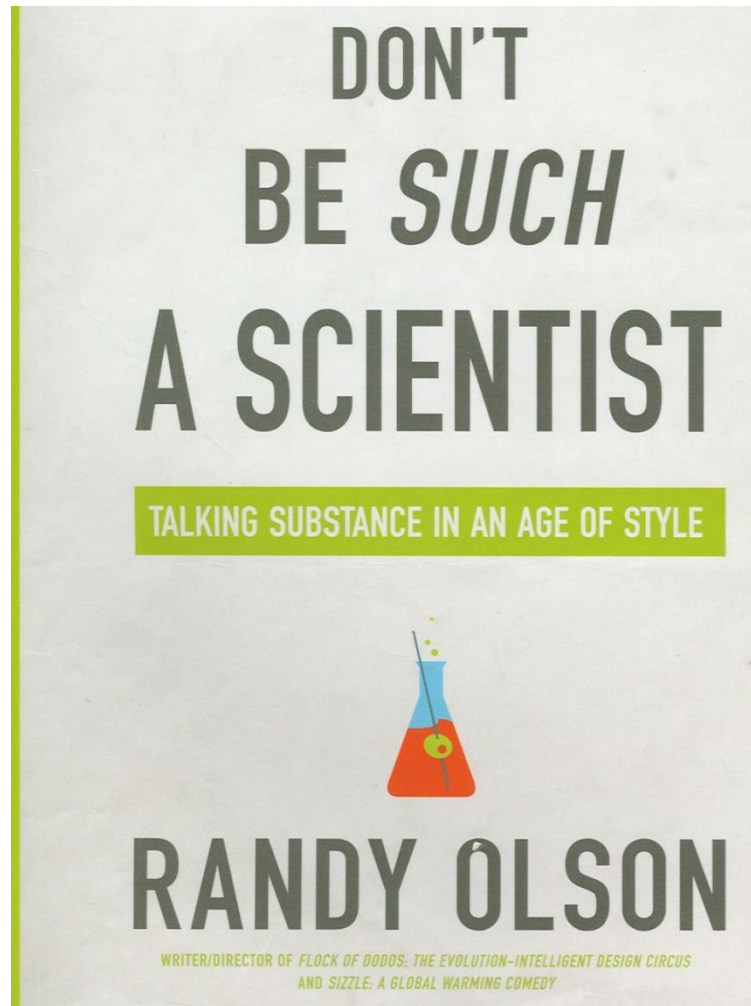
- Special interest groups have become disciplined, strategic and have little interest in scientific accuracy
- Need to communicate in language the public understands
- Social media has changed everything – need to respond in real time

Special interest groups have become disciplined, strategic, and have little interest in scientific accuracy





Need to communicate in language the public understands



How Academic versus General audiences respond to various aspects of communication

Communication aspect	Academic	General
Main information channel	Audio and visual	Visual
Structure	Information is fine	Need a story
Mode of response	Cerebral	Visceral
Need humor?	Not necessarily	Pretty much
Like sincerity?	Suspicious of it	Always
Sex appeal?	Potential disaster	The ultimate
Prearoused?	Yes	No
Effective elements	Information	Humour, sincerity, sex
Effective organs	Head	Heart, gut, gonads
Preferred voice	Robotic	Human

Social media has changed everything

– need to respond in real time

Sent: Wednesday, September 19, 2012 9:42 AM

To: Alison L. Van Eenennaam

Subject: FW: Massive Tumors in Rats Fed GMOs - Press Call at 2:30 with Leading Experts

I'm food and agriculture reporter within Washington, DC. I came across your name looking for a second opinion on the study (and upcoming press conference) referenced in the press release below. Do you have some time this afternoon for a phone call? Please let me know the best time to reach you and the best number to call. If you're not available, is there someone else you'd recommend?

Massive Tumors in Rats Fed GMOs in First Long-Term Study

Leading Experts to Hold Press Call Today at 2:30pm EDT

Statement from Yes on Proposition 37, California Right to Know GMO Labeling Campaign

Oakland, CA - Genetically engineered corn was linked mammary tumors, kidney and liver damage and other serious illnesses in the first ever peer-reviewed, long-term animal study of these foods. The findings were published today in the journal Food and Chemical Toxicology.

Read the study here: <http://research.sustainablefoodtrust.org/wp-content/uploads/2012/09/Final-Paper.pdf>

Reuters story about the study: <http://www.reuters.com/article/2012/09/19/gmcrops-safety-idUSL5E8KJAGN20120919>

While numerous 90-day studies have already linked GMO foods to allergies and other health problems, today's publication marks the first-ever long term animal study on the health effects of genetically engineered foods, and comes as California voters consider the Proposition 37 Right to Know initiative to label genetically engineered foods.

In response to this study, Yes on Proposition 37 California Right to Know Campaign Manager Gary Ruskin released the following statement:

"The results of this study are worrying. They underscore the importance of giving California families the right to know whether our food is genetically engineered, and to decide for ourselves whether we want to gamble with our health by eating GMO foods that have not been adequately studied and have not been proven safe. By requiring simple labels on genetically engineered foods, Proposition 37 gives Californians the ability to choose whether to expose ourselves and our families to any potential health risks. The right to know is fundamental, and that's why 50 countries around the world have already enacted labeling requirements for genetically engineered food."

The study's authors, together with the non-profit organization Sustainable Food Trust, will be hosting a press conference call today to discuss the study at 11:30 a.m. PDT

WHAT:

Telephone press conference press briefing on first animal feeding trial studying the lifetime effects of exposure to Roundup tolerant GM maize, and Roundup, the world's best-selling weedkiller.

What might work?

Calling on poor science or political science in a way that gets publicity

Replace “spurious” or “poor experimental design”
with

bogus, big talk, bunkum, cock-and-bull story,
disingenuous, exaggeration, fairy tale, fancy talk,
farfetched story, fib, fiction, fine talk, fish story,
flam, flimflam, half-truth, highfalutin, highfaluting,
hot air, lie, mendacity, pious fiction, prevarication,
snide, sinister, trumped-up story

BE PASSIONATE ABOUT SCIENCE

“There is little benefit to society if attempts to increase public participation in the regulatory process are used as an opportunity to vilify technology.”

Transgenic salmon: a final leap to the grocery shelf?

Nature Biotechnology (2011) **29**: 706–710.

Alison L Van Eenennaam & William M Muir

Despite being caught up in regulatory proceedings for 15 years or more, AquAdvantage salmon, the first animal genetically engineered (GE) for food purposes, continues to raise concerns. Are any of these concerns scientifically justified?

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The tortuous passage of AquAdvantage salmon through the US regulatory system provides a stark reminder of the adage that sometimes it is good not to be first. A fast-growing transgenic fish containing a gene encoding Chinook salmon growth hormone under the control of an antifreeze protein promoter and terminator from ocean pout, AquAdvantage salmon has been subjected to one of the most prolonged, if not exhaustive, regulatory assessments in history. This process culminated last September with a meeting of the Veterinary Medicine Advisory Committee (VMAC) as well as a public hearing, together with the release of a comprehensive health and safety briefing and an environmental assessment package on the transgenic animal developed by AquaBounty Technologies of Waltham, Massachusetts. Despite VMAC's determination



AquaBounty Technologies



Alaska trip from the pages of National Geographic

Provided by Lindblad Expeditions



Shocking discovery for joint relief

Provided by Instaflex



What is the best non-prescription eyelash enhancer?

Provided by DermStore.com
Advertising by RedefineStyle

NEWS ANALYSIS

Scientists fret over FDA slowness on genetically altered animals

Approval of foods from genetically modified animals is unjustifiably slow, scientists say; some are looking abroad.



Comments

11



Email



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+1

8



Tweet

142



AquaBounty's genetically modified salmon, rear, is shown with an unmodified salmon of the same age. (AquaBounty Technologies / October 1, 2012)



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Like

317k



Fact check: Romney's tax claims challenged by non-partisan report

602 people recommend this.



Arnold Schwarzenegger's tell-all book takes bad taste to a new level

advertisement

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Medical Records
Technician—Start Today!

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FREE CAREER KIT

BryanCollege

Accredited by ACCSC



What might work?

ADVOCACY OF SCIENCE

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Righteous indignation when scientific process becomes corrupted for political purposes



9255 GMO



9344 GMO+R



9202 R

What really concerned me were the photos of the rats with abnormally large tumors,” she said. “I realize that they were trying to prove a point, but you don’t make animals suffer to do it. At our lab, once a tumor exceeds 40 millimeters, the animal is sacrificed. We take animal welfare very seriously, and for these researchers to allow the [treated] rats to grow tumors as large as the ones they photographed is absolutely appalling.”

What is missing?

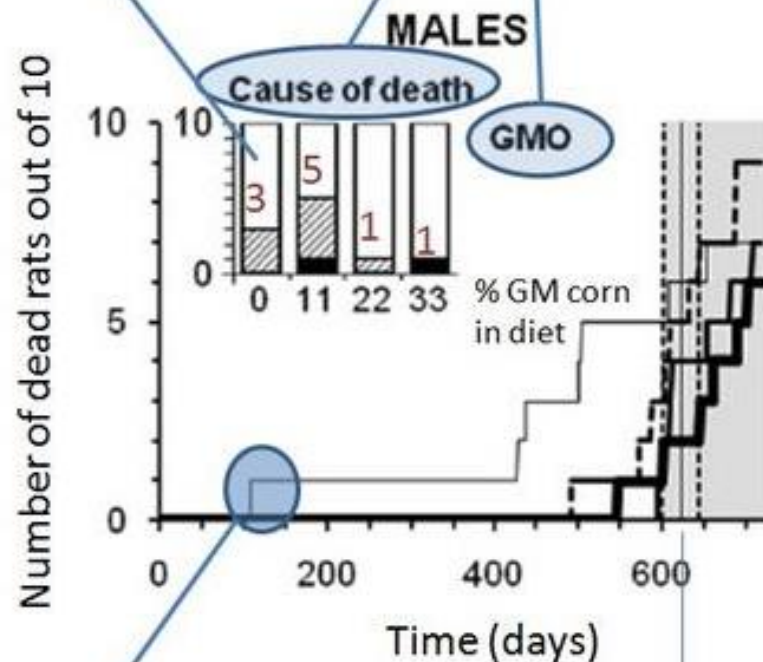


Control image downloaded from <http://www.ratfanclub.org/mamtumpics.html>
Approx. 70% of female Sprague–Dawley rats get mammary tumors by 2 years of age

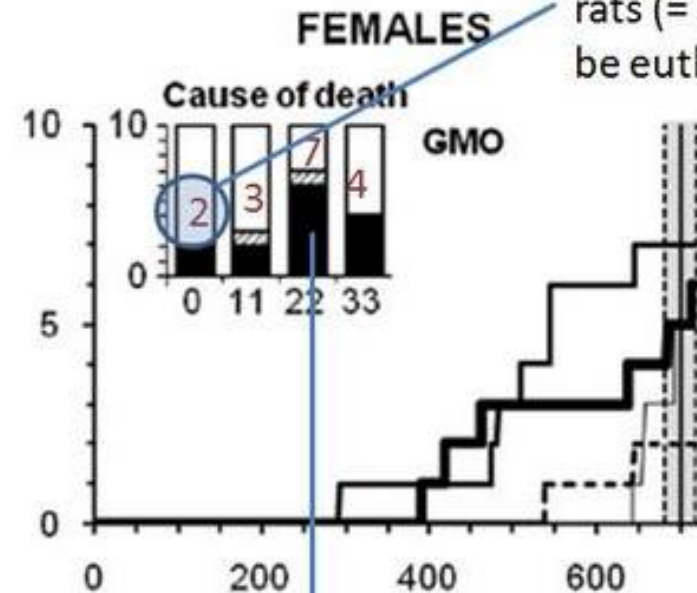
Number of rats is plotted.
3 rats died out of 10 tested
So no error bars here:
we're comparing 3 with 5
and 1 (!) rat here

The word GMO next to cause of death is "accidental"!
"Cause" has a myriad of 2 possibilities: spontaneous (grey) or euthanasia (black). The plotted experiment is the one with only GMO tested, hence the word in the graph. You also have RoundUp and GMO + RoundUp

G.-E. Séralini et al. / Food and Chemical Toxicology xxx (2012) xxx-xxx



1 (!) dead rat



20% of control rats (= 2) had to be euthanised!

Higher number of euthanised rats (black). Rats are euthanised because of too big tumours (objective), but also by unspecified reasons (referred to by the scientific term "etc." in the legend and "such as" in methods)

- 11% GM corn in diet
- 22%
- 33%
- - - 33% non-GM (control)

Average life span control group

As a scientist these are the concerns about mandatory GE labeling

- There have been hundreds of animal feeding studies showing no health effects and singling out GE for labeling suggests there is something wrong with them
- Safety is supported by NAS, AMA, WHO, FDA, EFSA, mainstream medical.....
- Studies show that biotech crops have had environmental benefits

National Research Council (NRC). ***Impact of Genetically Engineered Crops on Farm Sustainability in the United States***. Washington, DC: The National Academies Press, 2010.

Many U.S. farmers who grow genetically engineered (GE) crops are realizing substantial economic and environmental benefits -- such as lower production costs, fewer pest problems, reduced use of pesticides, and better yields -- compared with conventional crops, says a new report from the NRC.

"Many American farmers are enjoying higher profits due to the widespread use of certain genetically engineered crops and are reducing environmental impacts on and off the farm," said David Ervin, professor of environmental management and economics, Portland State University, Portland, Ore., and chair of the committee that wrote the report

First introduced in 1996, genetically engineered crops now constitute more than 80 percent of soybeans, corn, and cotton grown in the United States. GE soybeans, corn, and cotton are designed to be resistant to the herbicide glyphosate, which has fewer adverse environmental effects compared with most other herbicides used to control weeds. In addition to glyphosate resistance, GE corn and cotton plants also are designed to produce a Bt protein that is deadly when ingested by susceptible insect pests.

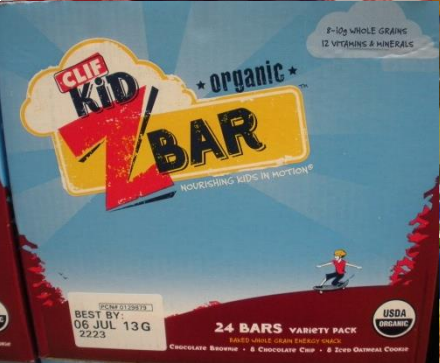
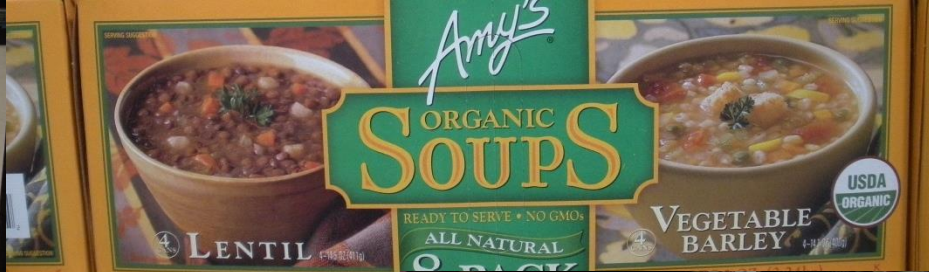
ENVIRONMENTAL BENEFITS

Improvements in water quality could prove to be the largest single benefit of GE crops, the report says. Insecticide use has declined since GE crops were introduced, and farmers who grow GE crops use fewer insecticides and herbicides that linger in soil and waterways. In addition, farmers who grow herbicide-resistant crops till less often to control weeds and are more likely to practice conservation tillage, which improves soil quality and water filtration and reduces erosion.

Available for free online at http://www.nap.edu/catalog.php?record_id=12804#toc

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- Mandatory process based labeling singles out GE process in absence of difference in product – there are many processes used in food production

Mandatory process-based labeling singles out GE process in absence of difference in product – there are many processes used in food production

What would be the cost of mandatory consumer “right to know” process-based labeling about all aspects of the food production process?



E
X
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Proposition 37: The measure, however, exempts certain categories of food and food additives from the above labeling requirements. For example, alcoholic beverages, organic foods, and restaurant food and other prepared foods intended for immediate consumption would be exempted.

In addition, producers and sellers of the products are exempt from labeling requirements if they

- (1) obtain a sworn statement indicating that the product does not intentionally or knowingly contain GE ingredients or
- (2) receive independent certification that their product does not contain GE ingredients.

However, the measure prohibits the use of terms such as “natural,” “naturally made,” “naturally grown,” and “all natural” in the labeling and advertising of any food that is genetically engineered.

<http://www.lao.ca.gov/ballot/2011/110813.aspx>





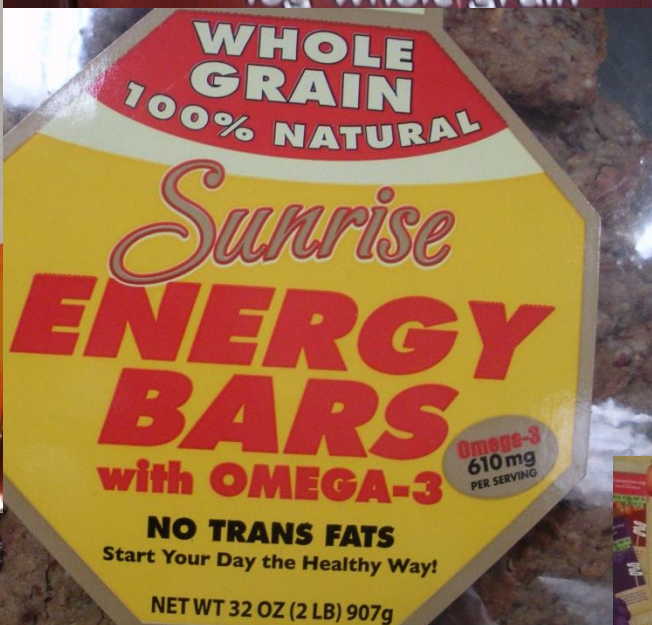
Ingredients: Whole Grain Oats, Sugar, Canola Oil, Dark Chocolate Pieces (sugar, chocolate liquor, cocoa butter, soy lecithin, natural flavor, salt), Yellow Corn Flour, Honey, Soy Flour, Cocoa, Brown Sugar Syrup, Salt, Soy Lecithin, Natural Flavor, Baking Soda.
CONTAINS SOY; MAY CONTAIN PEANUT, ALMOND AND PECAN INGREDIENTS.

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Carbohydrate Choices: 2

3876336102



INGREDIENTS: Rolled Oats, Whole Sustagrain® Barley Flour, Cranberries, Raisins, Dried Apples, Apricots, Almonds, Walnuts, Flax Seeds, Sunflower Seeds, Whole Grain Flour, Cashews, Sesame Seeds, Shredded Coconut, Non Hydrogenated Canola Oil, Unsalted Butter (Milk), Brown Sugar, Honey, Salt, Baking Soda, Tapioca Syrup, Natural Flavor, Cinnamon.
ALLERGY INFORMATION: This Product Contains Milk, Coconut and Tree Nuts. Also Stored in a facility that may contain Wheat, Soy, Eggs, Milk, Coconut, Peanuts and Tree Nuts.



ITEM #1508

Original Down
Under Recipe

Traditional

Aussie Bites™

with **Omega-3**

Omega-3
610 mg
PER SERVING

**Rolled Oats, Honey, Apricots,
Raisins, Sunflower Seeds,
Flax Seeds and More!**

NET WT 30 OZ (1 LB 14 OZ) 850 g

INGREDIENTS: Rolled Oats, Whole Grain Flour, Unsalted Butter, Sugar, Honey, Raisins, Dried Apricots, Sunflower Kernels, Flax Seeds, Shredded Coconut, **Non-Hydrogenated Canola Oil**, Baking Soda, Salt.

Allergy Information: Manufactured in a facility that may produce products that contain wheat, soy, eggs, milk, peanuts, and tree nuts.

100% NATURAL
WHOLE GRAIN
NO TRANS FAT

Litigation. According to the measure, violation of the measure's provisions could be prosecuted by state, local, or private parties.

The measure states that the court could award these parties all reasonable costs incurred in investigating and prosecuting the action.

In addition, the measure specifies that consumers could sue for violation of the measure's provisions under the state Consumer Legal Remedies Act.

In order to bring such action forward, **the consumer would NOT be required to demonstrate any specific damage from the alleged violation.**

<http://www.lao.ca.gov/ballot/2011/110813.aspx>

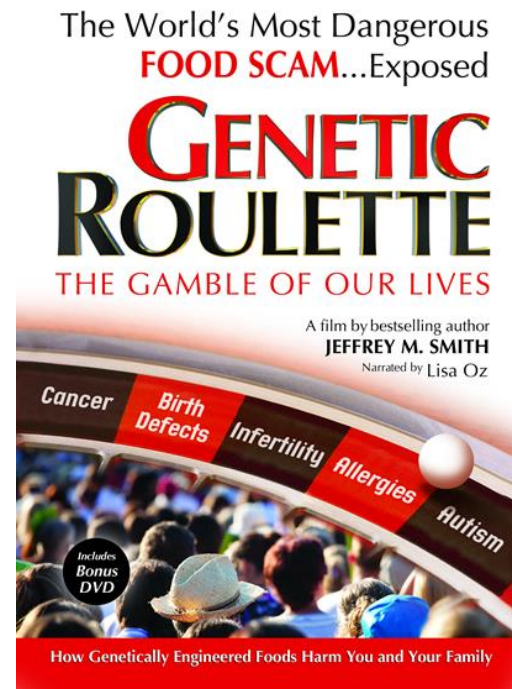
What might work?

ADVOCACY OF SCIENCE

Calling on poor science or political science in a way that gets publicity

Righteous indignation when scientific process becomes corrupted for political purposes

Utilize our students – assign classes to examine the science behind sensational claims



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Training charismatic advocates – farmers and scientists



- I like the outdoors
- I like animals
- I am not in a lab coat
- I care

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Utilize our students – assign classes to examine the science behind sensational claims

Training charismatic advocates

Rebranding our research to match societal concerns

Feeding the world message is getting old



<http://www.smh.com.au/news/world/why-you-will-never-see-a-front-page-like-this/2005/06/30/1119724757442.html>

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If funding gets questioned – lob it back at the questioner because there are many “industries” – there is agricultural industry, the biotech industry, the organic industry, and the ACTIVIST industry – all of which get their money from somewhere.....

This is my vested interest in science....



We live in a society exquisitely dependent on science and technology, in which hardly anyone knows anything about science and technology

Carl Sagan

(9 Nov 1934 - 20 Dec 1996)