

Views on Genetically Modified Organisms(GMOs)

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Bad Science

Shaw Grp Meeting 150921

What is Genetically Modified Organisms (GMOs)?

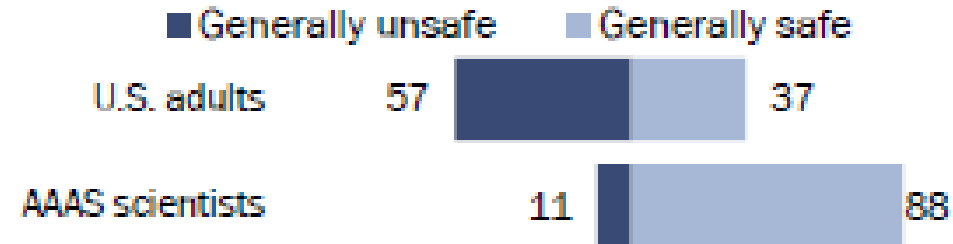
- ▶ GMOS: organisms whose genetic material is changed in a way that cannot be done in nature
 - ▶ Modern Biotechnology
 - ▶ Gene Technology
 - ▶ Genetic Engineering
- ▶ These food are produced because some advantages may arise from them
 - ▶ Lower price
 - ▶ Greater benefits (durability or nutritional value)
 - ▶ Crop protections



The Stats

Eating Genetically Modified Foods

% of each group saying it is generally safe or unsafe to eat genetically modified foods



Survey of U.S. adults August 15-25, 2014. Q38. AAAS scientists survey Sept. 11 - Oct. 13, 2014. Q28 Those saying don't know or giving no answer are not shown

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Seeking GMO Labels?

% of U.S. adults who say they look to see if products are genetically modified when food shopping

Always look	25
Sometimes	25
Not too often	17
Never look	31
Don't know/No food shopping (vol.)	<u>2</u>
	100

Survey of U.S. adults August 15-25, 2014. Q37.

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- ▶ 51 point difference in opinion on the safety of GMOs
 - ▶ 37% of U.S. Adults
 - ▶ Those with college degree are split almost in half, with 49% saying its generally safe
 - ▶ 88% AAAS (American Association for the Advancement of Science) Scientist

The Fears

- ▶ One of the main reasons for opinion of unsafe is they are not confident that scientist understand GMOs fully
 - ▶ 67% of U.S. adults feel that scientists have an unclear understanding of the health effects of GMOs
- ▶ ANTI-GMO
 - ▶ Transfer of novel genetic material to humans or gastrointestinal microorganism
- ▶ PRO-GMO
 - ▶ Without GMOs, there is need for the use of more pesticides, BUT the public is also against pesticides pushing for a more traditional farming.

Public Skeptical About Scientific Understanding on GMOs

% of U.S. adults saying scientists have a clear/not clear understanding of the health effects of genetically modified crops



Survey of U.S. adults August 15-25, 2014. Q39. Those saying don't know are not shown

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Potatoes covered in insecticide found in Indonesia

Scientific Data

- ▶ Snell, C, et al (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: 1134-48.
 - ▶ Multiple long term studies on animal feeding with GM and non-GM food shows that GM and their non-GM counterpart are nutritionally Equivalent
- ▶ World Health Organization
 - ▶ GM food safety needs to be made on a case-by-case basis
 - ▶ Currently, GM food available have passed safety assessments
 - ▶ No effects on human health have been show as a result of consumption
- ▶ AAAS release statement for safety of GM foods
 - ▶ http://www.aaas.org/sites/default/files/AAAS_GM_statement.pdf



Unscientific Results

- ▶ Study claims that GMO corn causes cancer
- ▶ After exploding on the internet and going viral, many groups (Nature News, European Food Safety Authority, German's Federal Institute for Risk Assessment) sought out to review the research
- ▶ Problems:
 - ▶ Issues relating to design and methodology of the study lead no conclusion being able to be made
 - ▶ Mice used and amount of mice
 - ▶ Time span
 - ▶ Statistics
 - ▶ Authors main statements are not verified by experimental evidence



Sprague Dawley Rat

<http://www.skepticalraptor.com/skepticalraptorblog.php/overhyped-gmo-corn-study-scrutiny/>

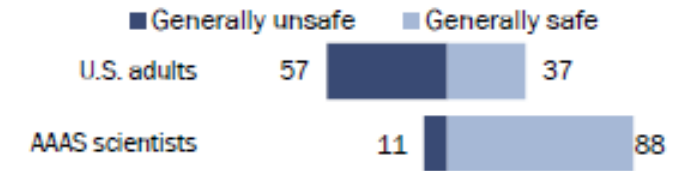
Séralini GE, et al. Food Chem Toxicol. 2012 Nov;50(11):4221-31.

Conclusions

- ▶ 88% of AAS scientist believe GMOs are safe while 37% U.S. Adults feel they aren't
- ▶ Most of the Public (68%) feel that scientists don't have a clear understanding of the health effects
- ▶ The people want more traditional farming
- ▶ “What people don't understand is that without pesticides there is not enough food for the masses,” Amy Hepworth(organic famer at Hepworth Farms) says. “The fact is that GM is a tool that can help us use less pesticide.”
- ▶ Problem: There is not a lot of research and much is unknown
- ▶ What is out there on the market goes through extensive testing before being approved

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