

The GMO Files



IFT Minnesota, February 22, 2016





An overwhelming majority (93%) of US consumers think that before genetically engineered food can be sold, it must be labeled accordingly.

- Consumer Reports, April 2014

Generation GMO

GMO ingredients Are Pervasive in Baby Formula



GMOiNSIDE.ORG

Unborn Btabies

Bt toxins from GM corn in the diet were present in 93% of pregnant women tested, in 80% of umbilical blood samples from fetuses, and in 67% of non-pregnant women.



Source: Sherbrooke University Hospital, Quebec, *Journal of Reproductive Toxicology*, February 2011

GMO Toxins and Health

“Cry” proteins from dietary exposure to Bt toxins in GMO crops were found to be toxic to red blood cells and bone marrow cells in mammals, with risk for anemia and leukemia.



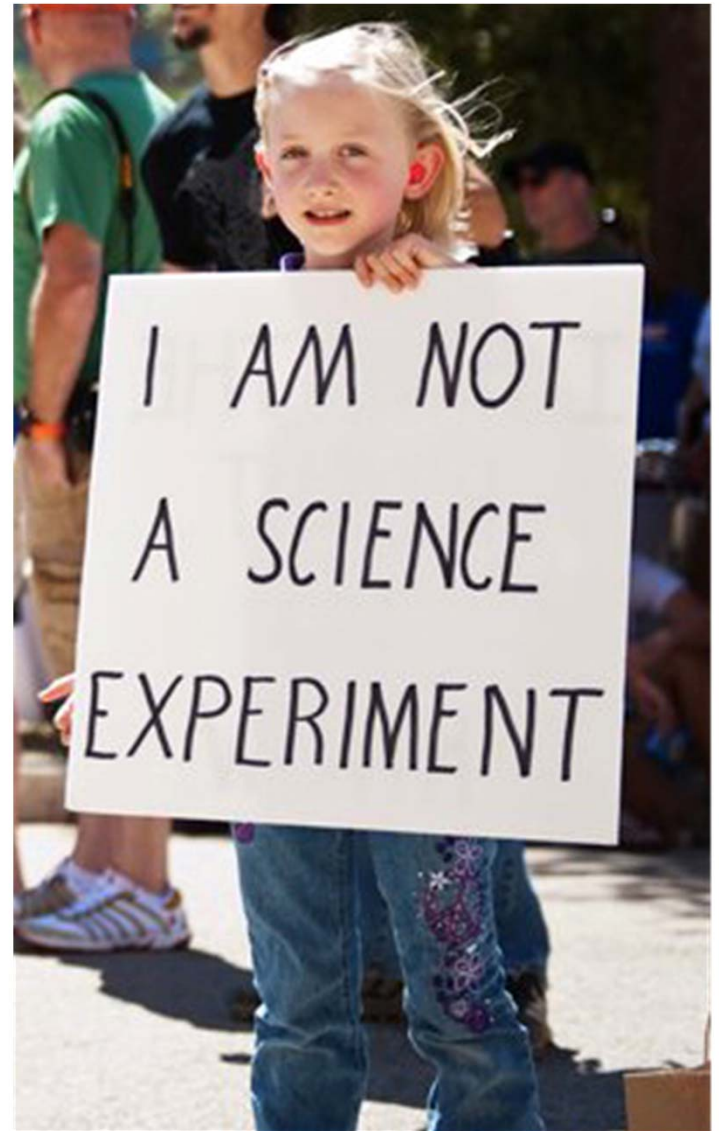
Source: B. Mezzomo, et. al., Hematotoxicity of Bacillus thuringiensis as Spore-crystal Strains Cry1Aa, Cry1Ab, Cry1Ac or Cry2Aa in Swiss Albino Mice, Journal of Hematology and Thromboembolic Diseases, 2013



PR Says It's Safe, So It Must Be Safe, Right?

No long-term human health studies have ever been conducted on the effects of genetically engineered foods in the diet.

However, since the introduction of GMOs in 1994, more than 80% of grocery products now contain GMO ingredients, *with no labeling required.*



No scientific consensus on GMO safety

Angelika Hilbeck^{1,2*}, Rosa Binimelis^{1,3}, Nicolas Defarge^{1,4,5}, Ricarda Steinbrecher^{1,6}, András Székács^{1,7}, Fern Wickson^{1,3}, Michael Antoniou⁸, Philip L Bereano⁹, Ethel Ann Clark¹⁰, Michael Hansen¹¹, Eva Novotny¹², Jack Heinemann¹³, Hartmut Meyer¹, Vandana Shiva¹⁴ and Brian Wynne¹⁵

Abstract

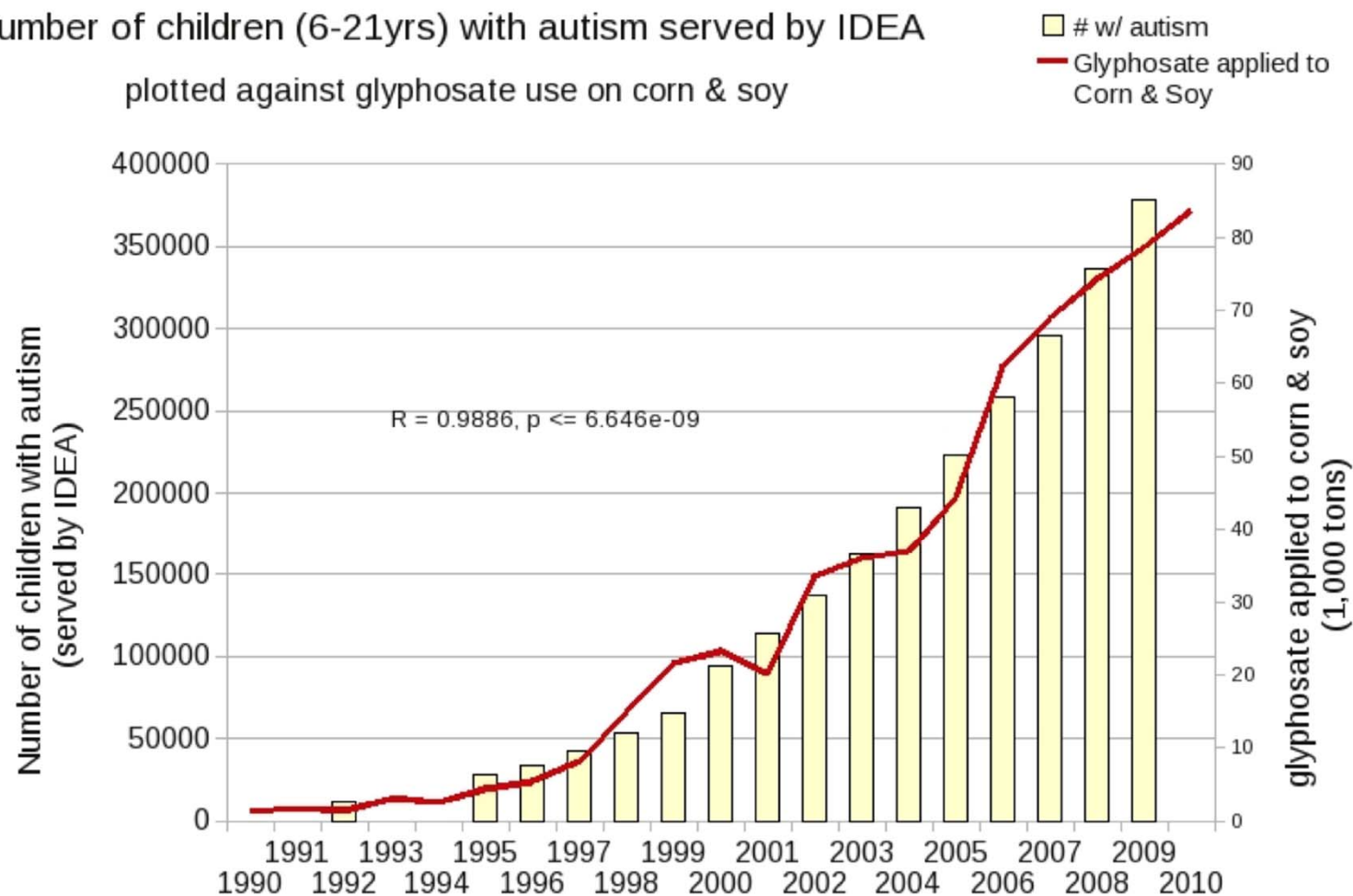
A broad community of independent scientific researchers and scholars challenges recent claims of a consensus over the safety of genetically modified organisms (GMOs). In the following joint statement, the claimed consensus is shown to be an artificial construct that has been falsely perpetuated through diverse fora. Irrespective of contradictory evidence in the refereed literature, as documented below, the claim that there is now a consensus on the safety of GMOs continues to be widely and often uncritically aired. For decades, the safety of GMOs has been a hotly controversial topic that has been much debated around the world. Published results are contradictory, in part due to the range of different research methods employed, an inadequacy of available procedures, and differences in the analysis and interpretation of data. Such a lack of consensus on safety is also evidenced by the agreement of policymakers from over 160 countries - in the UN's Cartagena Biosafety Protocol and the Guidelines of the *Codex Alimentarius* - to authorize careful case-by-case assessment of each GMO by national authorities to determine whether the particular construct satisfies the national criteria for 'safe'. Rigorous assessment of GMO safety has been hampered by the lack of funding independent of proprietary interests. Research for the public good has been further constrained by property rights issues, and by denial of access to research material for researchers unwilling to sign contractual agreements with the developers, which confer unacceptable control over publication to the proprietary interests.

The joint statement developed and signed by over 300 independent researchers, and reproduced and published below, does not assert that GMOs are unsafe or safe. Rather, the statement concludes that the scarcity and contradictory nature of the scientific evidence published to date prevents conclusive claims of safety, or of lack of safety, of GMOs. Claims of consensus on the safety of GMOs are not supported by an objective analysis of the refereed literature.

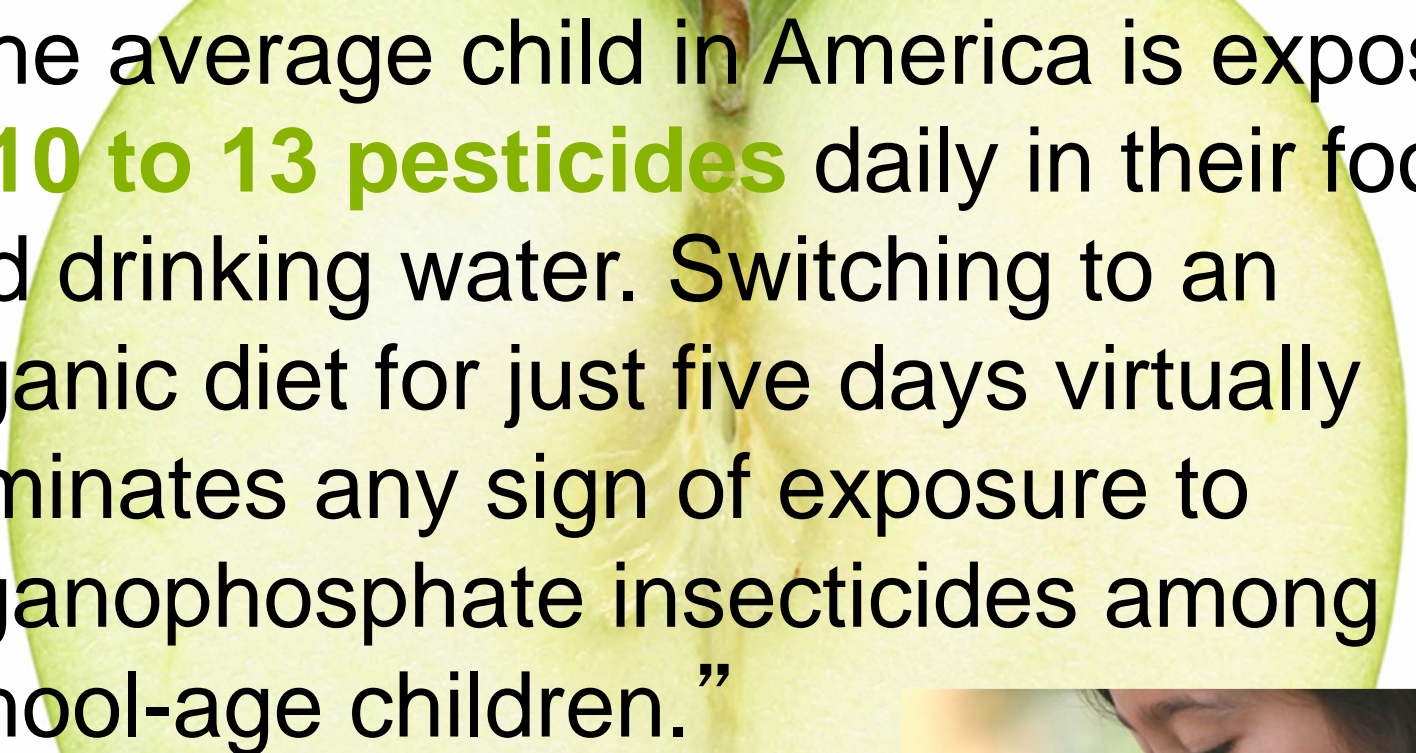
Hilbeck et al. *Environmental Sciences Europe* (2015) 27:4

Glyphosate and Autism*

Number of children (6-21yrs) with autism served by IDEA
plotted against glyphosate use on corn & soy



Source: Nancy Swanson, Ph.D., former staff scientist for the U.S. Navy, Examiner.com, April 10, 2013



“The average child in America is exposed to **10 to 13 pesticides** daily in their food and drinking water. Switching to an organic diet for just five days virtually eliminates any sign of exposure to organophosphate insecticides among school-age children.”

Source: *Reducing Pesticide Exposures Critical Issues Report*, The Organic Center, August 2006, Dr. Charles Benbrook; The Organic Center updated data, 2009.



Two-year GMO Study Reveals Tumors, Cancers in Rats

In a two-year study, French researchers found that rats fed on a diet containing NK603 “Roundup-ready” GMO corn – or given water mixed with glyphosate at levels permitted in the US – died earlier than those on a standard diet.

50% of male and 70% of female rats died prematurely, compared with only 30% and 20% in the control group.

G. Seralini, et. al., Journal of Food and Chemical Toxicology, 9.20.12



Huge: Séralini Wins Defamation and Forgery Court Cases over GMO Research



Séralini, the scientist known for his research linking [GM feed with cancerous tumor growth](#) in rats, has been through hell and back with his research on GMOs, but now it seems things are looking a little better for him. The Parisian High Court has indicted Marc Fellous, former chairman of France's Biomolecular Engineering Commission (BEC), for "forgery" and "the use of forgery," in a libel trial that he lost to Prof Gilles-Eric Séralini.



Harvard University

The GRADUATE SCHOOL *of* ARTS AND SCIENCES

“In the US, 1 in every 13 children has a food allergy, and the prevalence of childhood allergies has increased by more than 50% in the last 20 years.”

“Mandatory labeling of GMO ingredients, which has been required by law in the EU but not the US, could help consumers identify the potential allergens and facilitate the recall process, if necessary.”

- Charles Xu, Biological and Medical Sciences Program,
Harvard University, August 2015





The American Academy of Environmental Medicine Calls for Moratorium on GMOs

“Avoid GM foods when possible... Several animal studies indicate serious health risks associated with GM food...”

“There is more than a casual association between GM foods and adverse health effects. There is causation...”

“The strength of association and consistency between GM foods and disease is confirmed in several animal studies.”

Source: Genetically Modified Foods, *American Academy of Environmental Medicine Position Paper*, May 8, 2009.

Two thirds of EU states reject GMO crops,
filing opt-out requests before Oct. 3 deadline that
allows members to override EU-wide GMO approvals.

- Reuters, Oct. 5, 2015



Austria, (Belgium), Bulgaria, Croatia, Cyprus, Denmark, France,
(Germany), Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta,
the Netherlands, Poland, Slovenia, (U.K.)

Primary GMO crops in the US find their way into more than 80% of conventional processed foods

- Alfalfa
- Canola
- Corn
- Cotton
- Dairy (from cows given rBGH, GMO feed)
- Papaya (Hawaiian)
- Soy
- Sugar Beets
- Zucchini, Squash
- 2,4D-resistant corn
- Arctic apple
- Dicamba-resistant soy and cotton
- Bruise-resistant potato
- GM wheat, vegetables
- GMO salmon



Newsweek: World Is 'Awash In Glyphosate'

Posted By: [Matthew J. Grassi](#) | February 11, 2016

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The world is awash in **glyphosate**, the active ingredient in the **herbicide Roundup**, produced by **Monsanto**. It has now become the most heavily-used agricultural chemical in the history of the world, and many argue that's a problem, since the substance comes with concerning albeit incompletely-determined health effects, **reports Newsweek's Douglas Main**.



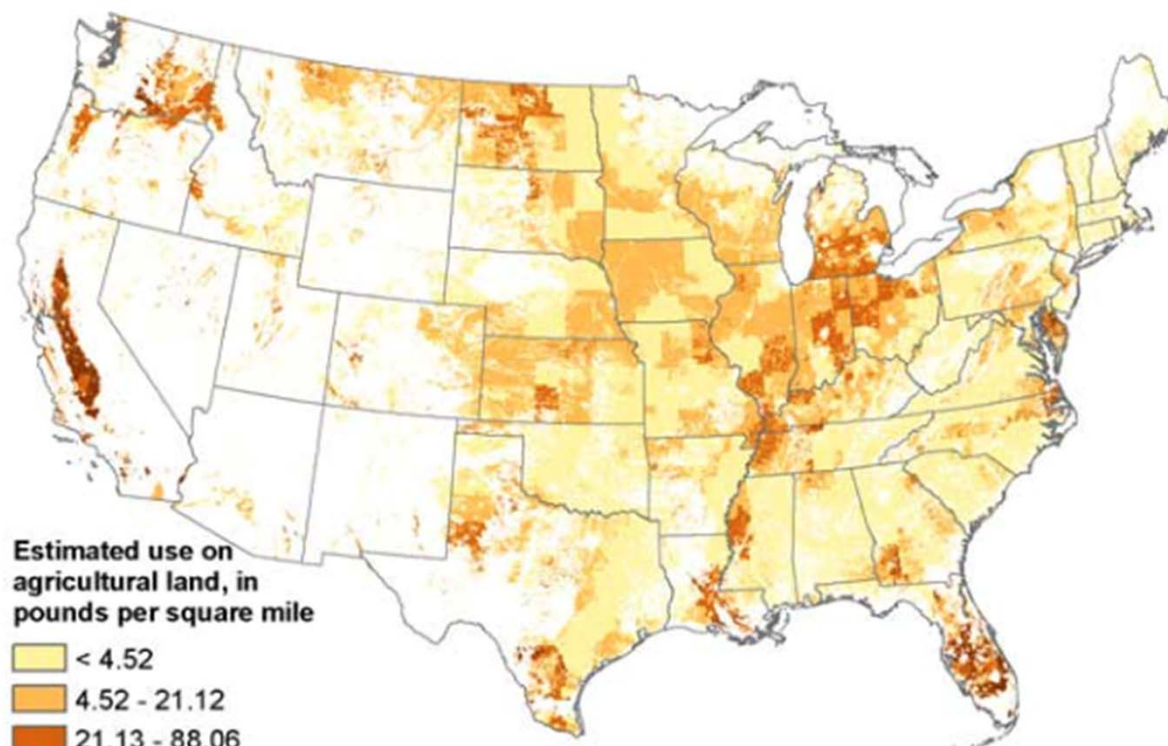
Glyphosate: Most heavily applied weed killer in world history

- 18.9 billion pounds of glyphosate used worldwide since its introduction
- Nearly 75% of all glyphosate was sprayed on crops in the last 10 years
- Global glyphosate use increased 15-fold since 1996
- $\frac{3}{4}$ lb of glyphosate on every harvested acre of cropland in US in 2014 alone
- WHO declares glyphosate “probable carcinogen” in 2015

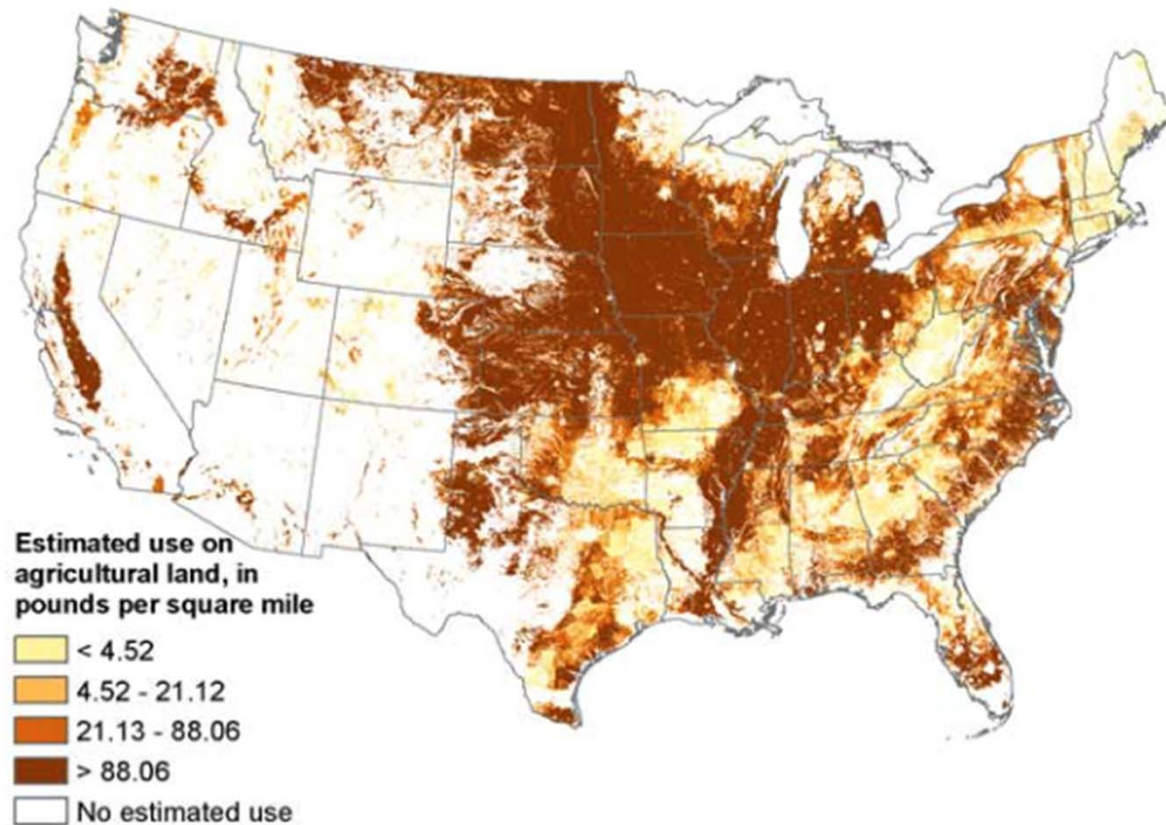
Source: *Environmental Sciences Europe*, January 2015



Estimated Agricultural Use for Glyphosate, 1992



Estimated Agricultural Use for Glyphosate, 2012



Top 10 States Spraying Glyphosate on Farmland

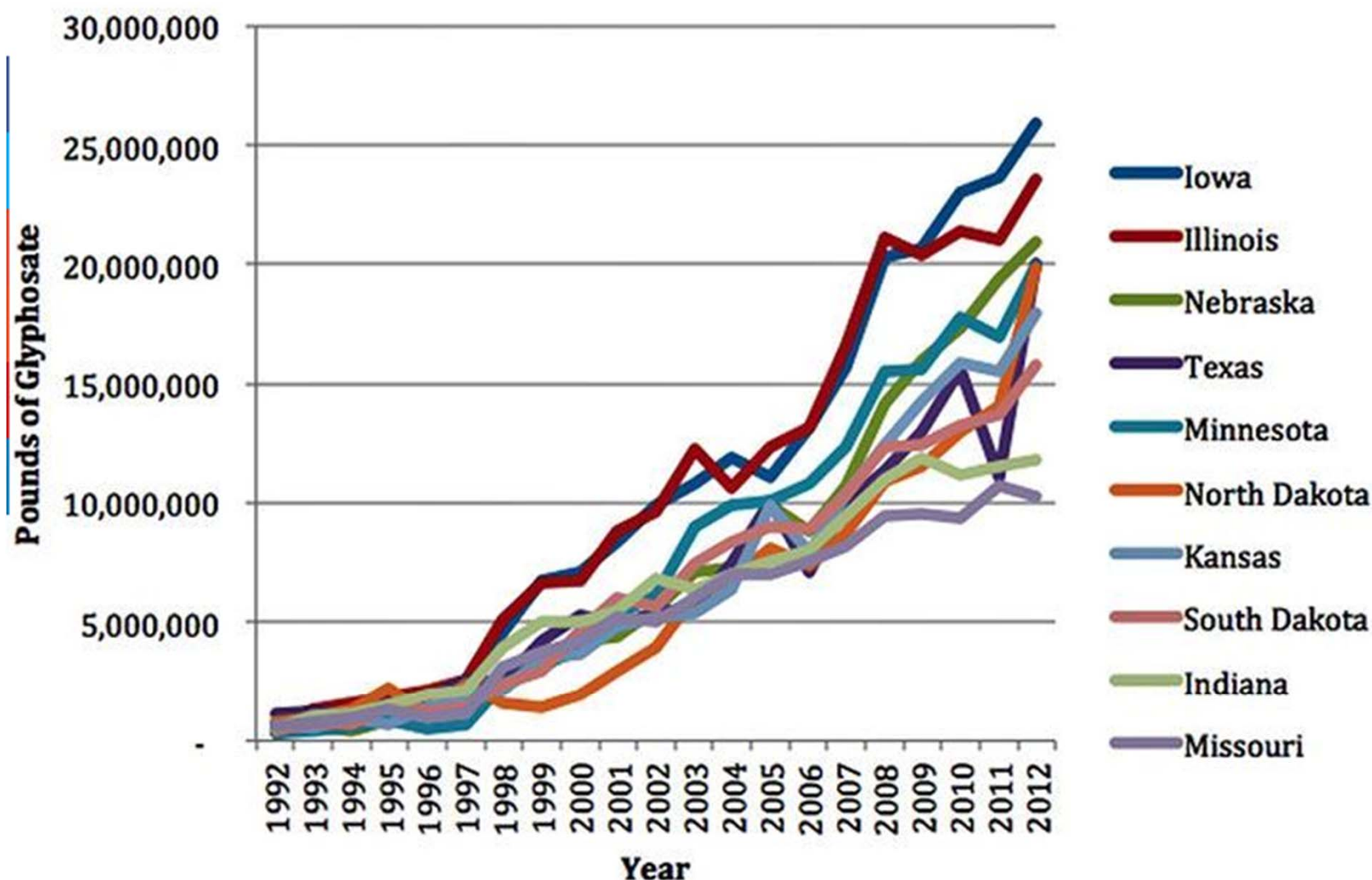
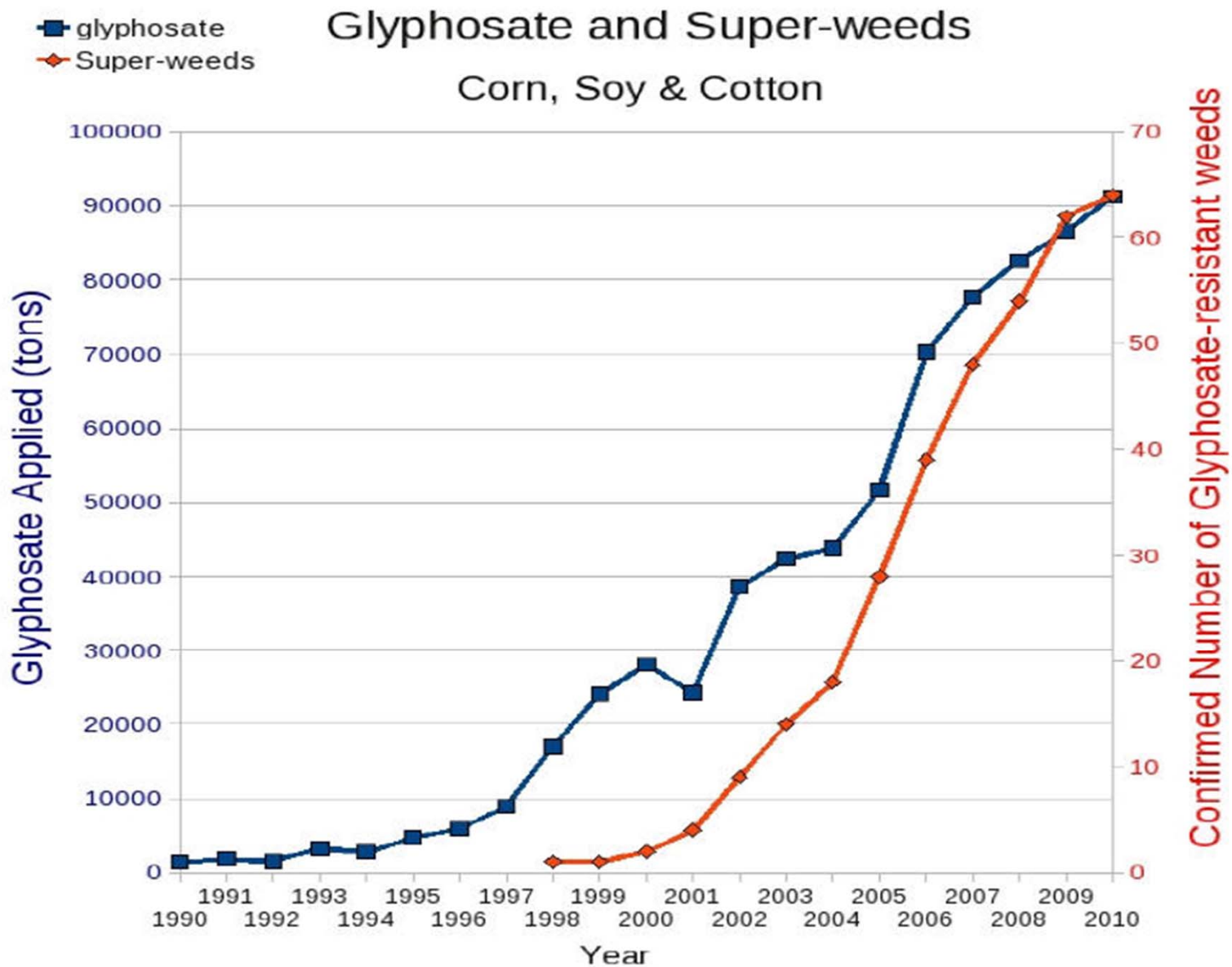
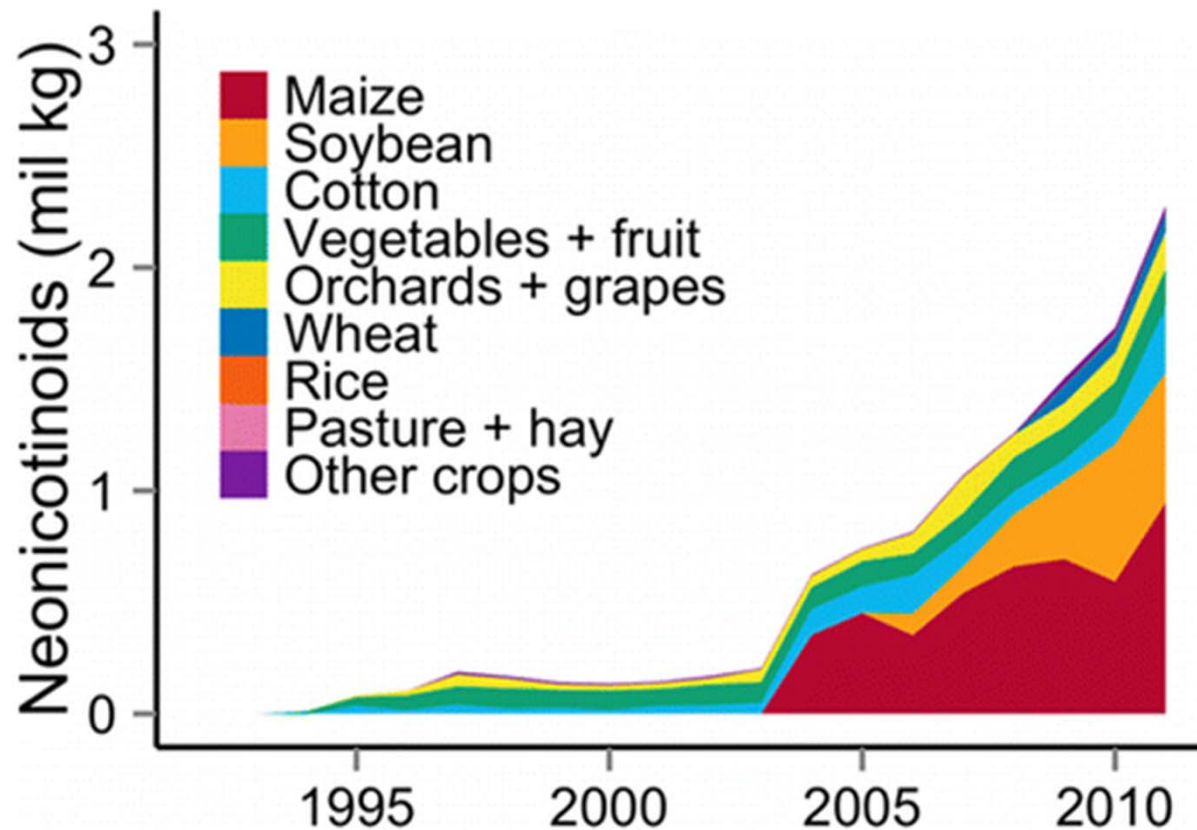


Photo credit: USGS, Pesticide National Synthesis Project



Source: USDA Data

Penn State: Are Neonicotinoids Killing Bees?



“Our results show that application of neonicotinoids to seed of corn and soybeans has driven a major surge in the U.S. cropland treated with insecticides since the mid-2000s.”

– March 2015

THE FDA WILL BEGIN TESTING FOOD FOR GLYPHOSATE, THE MOST HEAVILY USED FARM CHEMICAL EVER

BY ZOË SCHLANGER ON 2/19/16 AT 6:18 PM

Newsweek



Crops in the U.S. are sprayed on a mass scale with glyphosate, the active ingredient in the herbicide Roundup, produced by Monsanto. For the first time, the FDA will begin testing food for its residue.

CHARLES PLATIAU/REUTERS

GMO Labeling Example : Hershey's EU Label



FORMATION

e Bars) = 77g

Quantity Per 100g	Quantity Per Serving
1.7	1125.5
0.6	270.0
1.7	9.0
5.8	4.5
59.7	46.0
42.9	33.0
0.0	0.0
2.6	2.0
1.2	0.9

Ingredients:

Wheat Flour, Water, Sugar, Glucose Syrup*, Glucose Fructose Syrup*, Shortening [Soyabean Oil*, Cottonseed Oil, Canola Oil, Beef Fat], Eggs, Dextrose, Raising Agents [Sodium Bicarbonate (E500), Disodium Phosphates (E450), Modified Corn Starch*, Calcium Phosphates (E341)], Emulsifier [Soya Lecithin*, Mono and Diglycerides of Fatty Acids (E471), Polysorbate 60 (E435), Sodium Stearoyl-2-Lactylate (E481)], Glucose, Whey Powder (Milk), Glycerin, Soyabean Oil*, Salt, Preservatives [Sorbic Acid (E200), Potassium Sorbate (E202)], Stabilisers [Xanthan Gum (E415), Cellulose Gum (E468)], Flavourings, Artificial Colours [Tartrazine (E102)**, Allura Red (E129)**]

** May Have an Adverse Effect on Activity and Attention in Children.

*Derived from a Genetically Modified Source.

For Allergens Please see Ingredients in **Bold**

Storage Instructions: Store this product in a cool dry place, away from direct sunlight.

Best Before:

BEST BEFORE
28 04 16

520960

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JAN 07, 2016 | NEWS

WHY WE SUPPORT MANDATORY NATIONAL GMO LABELING

BY CAMPBELL TEAM

“Today, consistent with our purpose, we announced our support for mandatory national labeling of products that may contain genetically modified organisms (GMO) and proposed that the federal government provide a national standard for non-GMO claims made on food packaging.”
– CEO Denise Morrison

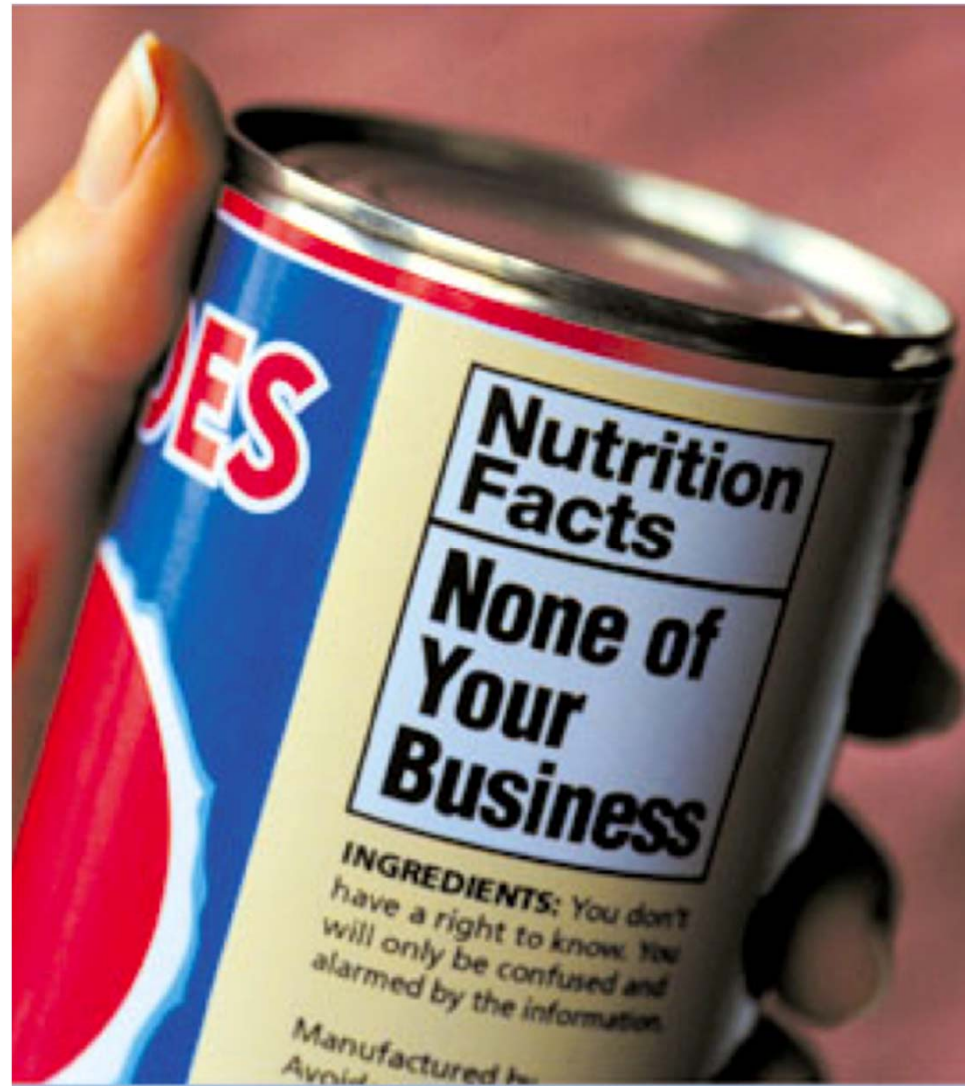


EXAMPLE OF A GMO LABEL

What if everything was labeled like GMO foods?

“You will only be confused and alarmed by the information.”

- Fat Content
- Cholesterol
- Calories
- Sodium
- Allergies, e.g. Peanuts
- Serving Size
- Daily Values



Campbell Soup Company

NYSE: CPB - Feb 19 4:02 PM EST

60.94 USD **↓0.02 (0.03%)**

1 day

5 day

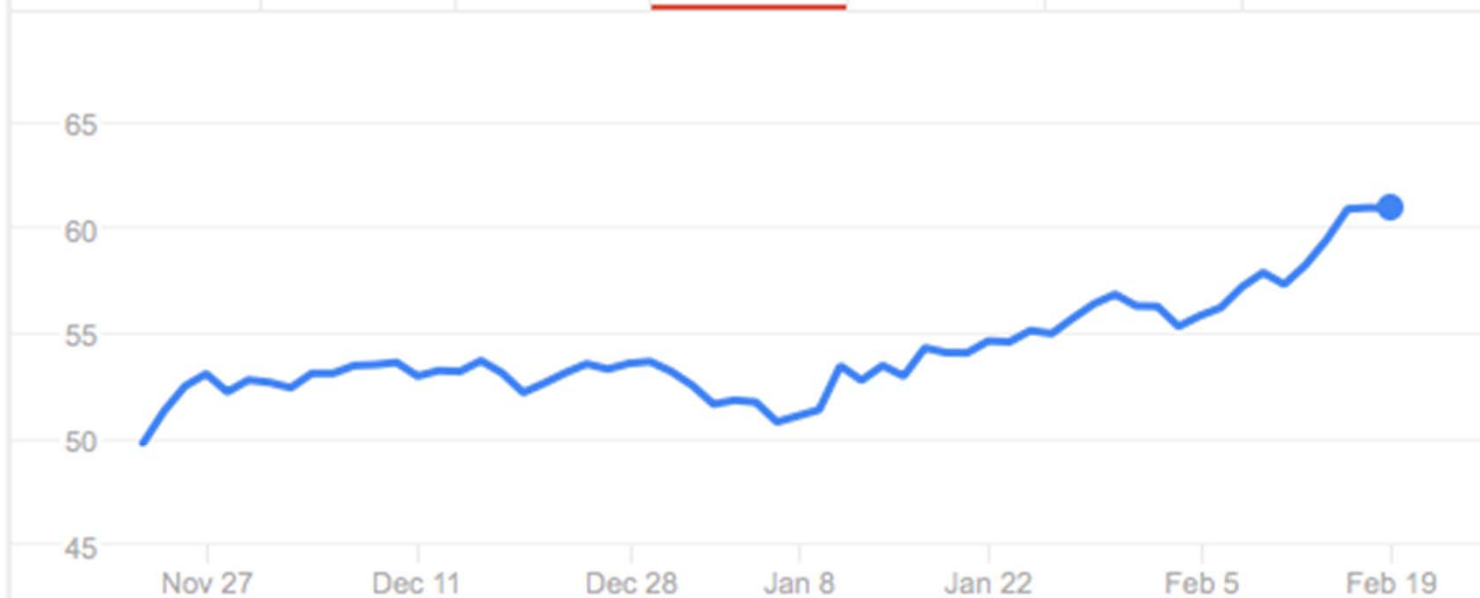
1 month

3 month

1 year

5 year

max



Open 60.82

High 61.42

Low 60.26

Mkt cap 18.91B

P/E ratio 29.25

Div yield 2.05%



Hershey dumps sugar beets because of GM concerns

December 27, 2015



“More than three-quarters of the sugar we are using today is cane sugar,” which is not genetically modified, and as we get into 2016, our expectation is to be at or near 100 percent.” - Jeff Beckman, Hershey’s Communications Director

The Seattle Times

Hidden corporate donors poured \$11M into fight to stop GMO labels in Wash.

A food-industry (GMA) group tried to shield identities of major corporations that spend \$11 million to defeat a 2013 food-labeling initiative in what Attorney General Bob Ferguson argues is among the worst cases of concealment in state history. AG seeks \$14M in fines.

It was an “egregious” plot to evade campaign-disclosure laws that ranks “among the worst in state history.”

“It was a detailed scheme over many months to purposely, in their words, shield their donors from public scrutiny, and that’s not OK.”

Labeling: The DARK Act

H.R. 1599, the Safe and Affordable Food Act – dubbed the DARK Act, passed the House in July 2015.

Sen. Pat Roberts, introduces Senate version on Feb. 19 to pre-empt Vermont mandatory labeling law.

- No mandatory labeling of GMO foods
- Would pre-empt all existing state and local laws regulating GMO labeling and GMO crop production
- House bill: GMOs permitted in definition of “natural”

U.S. bill seeks to block mandatory GMO food labeling by states



Republican Senator Wants Labeling for GMO Salmon

“I will not stand back and just watch these genetically engineered creatures be placed in our kitchens and on our tables without a fight. I am furious about this (FDA) decision but now I must do everything I can to make sure it is labeled.”

“I want to make sure that the FDA knows that voluntary labeling guidelines really are not sufficient. It does not comply with what is now law.” - **Sen. Lisa Murkowski (R-AK)**



Whole Foods Market to Require GMO Transparency from Vendors by 2018; Other Natural Retailers Follow Suit

Trader Joe's, Aldi's, WFM Say No to GMO Salmon

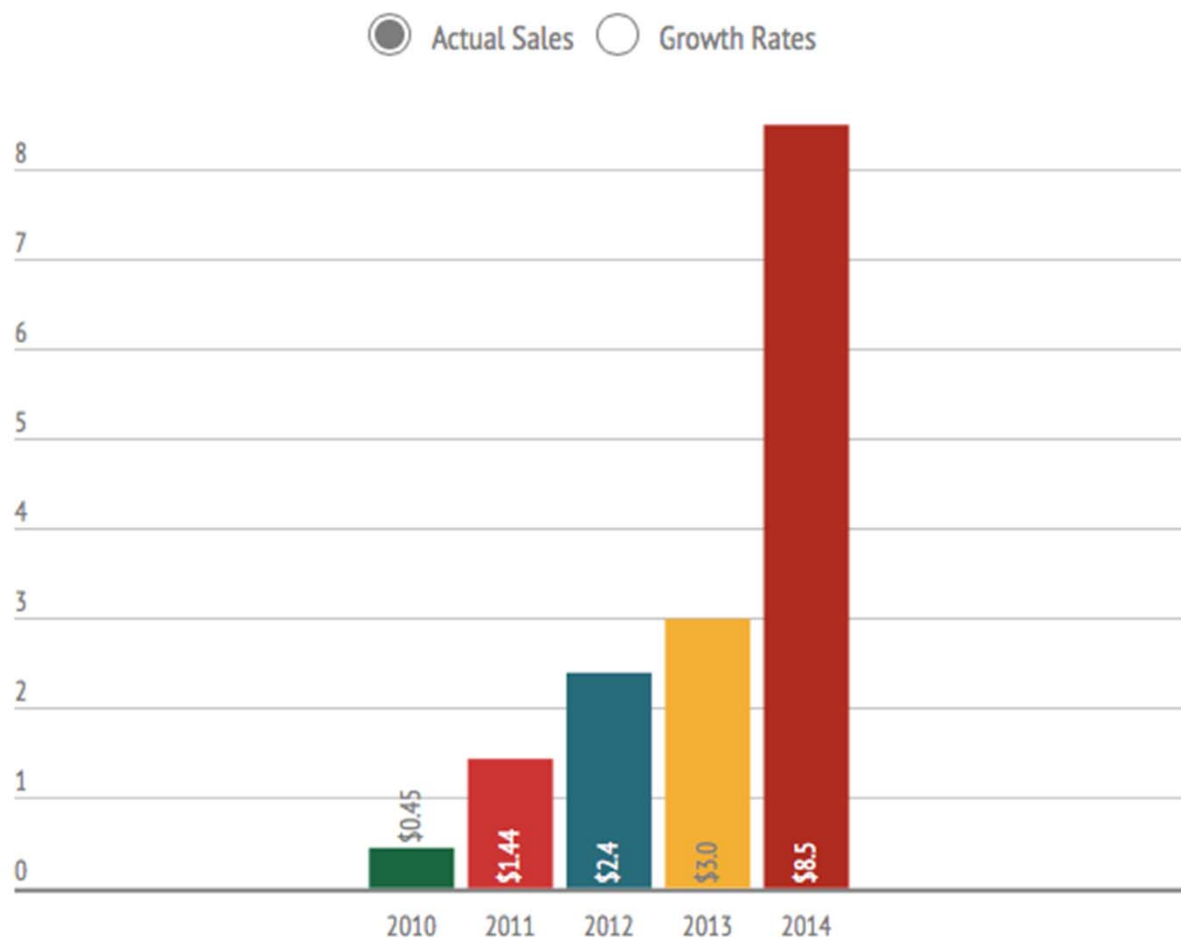


Non-GMO Market Growth

- Non-GMO Project Verified Seal is the fastest growing label in the natural products industry.
- \$11 billion in annual sales of Non-GMO Project Verified Products (2015) vs. \$2.5 billion of non-GMO verified products in 2012; > 27,000 products verified.
- WFM reports sales increases of 15% - 30% for non-GMO verified products; sells 3,000+ products that have gone thru non-GMO verification.



Total Sales of Products with Non-GMO Project Labels, in Billions



Sources: SPINS, The Organic and Non-GMO Report, GM Watch, The Wall Street Journal, Non-GMO Project.



Can the Ingredient Supply Chain Keep up With The “Non-GMO Tsunami?”

As products like Cheerios and Ben & Jerry's ice cream drop GMOs, suppliers of raw ingredients say they can meet the demand.

By [Ken Roseboro](#) on [July 7, 2015](#)

With this rapid growth, can the supply of non-GMO grains and ingredients meet the exploding demand? Industry experts say yes.

“Supply is up 25%, and demand is up 15-20%. I don’t think there is a danger of non-GMO supplies running out.” – Lynn Clarkson, Clarkson Grain

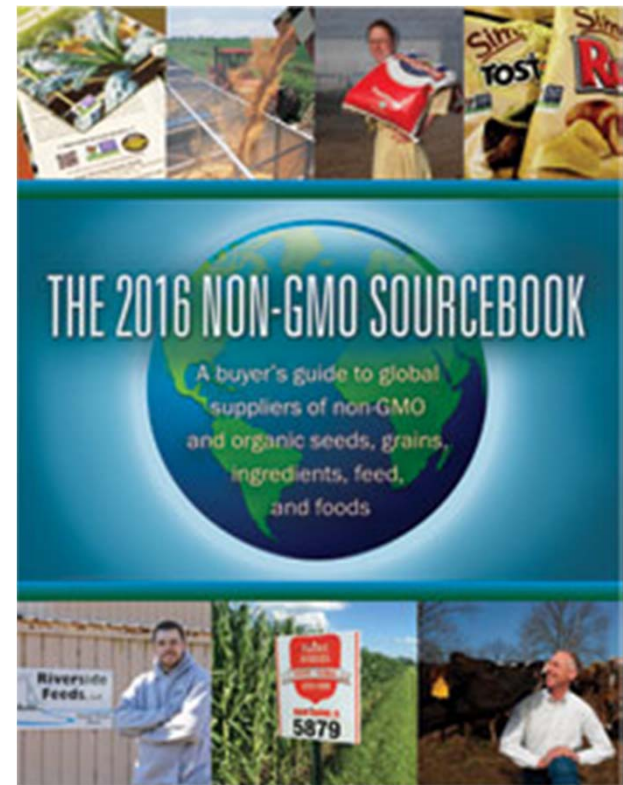
THE ORGANIC & NON-GMO REPORT

www.non-gmoreport.com

The number of people using non-GMO products increased from 37% in 2012 to 59% in 2014.

The number of non-GMO product launches increased from 551 in 2012 to 1,992 in 2014, a growth rate of 262%.

- Natural Marketing Institute







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