

Why Soy is Unhealthy: It's NOT What You Think!



Stephanie Seneff
MIT CSAIL
UNITE FOR SIGHT
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Outline

- Some Problems with Soy
- Glyphosate, Aluminum and Arsenic in Soy
- Health Consequences
- Cultivating Genetically Modified Soy is Dangerous
- Summary

Some Problems with Soy

Some Problems with Soy*

- About 25% of American babies are fed soy infant formula
- Phytic acid in soy blocks the absorption of critical minerals like calcium, magnesium, iron and zinc
- Babies fed soy-based formula had 13,000 to 22,000 times more isoflavones (estrogenic substances) in their blood than babies fed milk-based formula
 - Estrogenic effect leads to early onset of menarche (42% increased rate of menarche before 12.5 years old)
 - This is linked to infertility and breast cancer in later years

*<http://www.thehealthyhomeeconomist.com/why-soy-formula-even-organic-is-so-dangerous-for-babies>

Soy is High in Oxalates

“A buildup of oxalates in the body interferes with many metabolic processes and contributes to problems such as autism, ADD, COPD, asthma, cystic fibrosis, vulvodynia, autoimmune diseases such as fibromyalgia and hypothyroidism, low energy, chronic pain, and delayed healing of injuries.”*

*<http://joanneunleashed.com/1789/all-about-oxalates-with-susan-costen-owens/>



Growth of GM Corn, Soy and Cotton in US, 1996-2012*

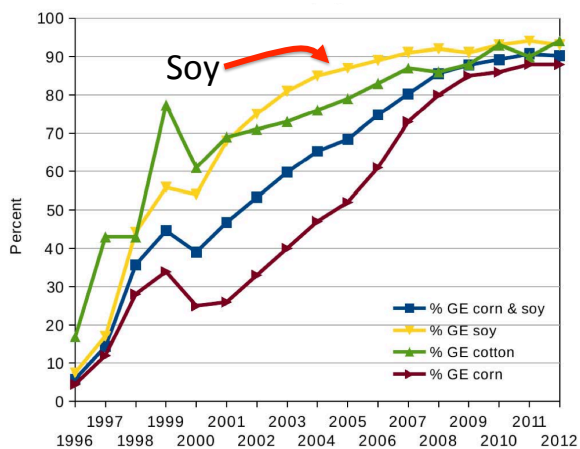


Figure 1. Adoption of GE crops in US.

*N. Swanson et al., Journal of Organic Systems, 9(2), 2014, 6-37.

Growth of GM Corn, Soy and Cotton in US, 1996-2012*

GM Soy is engineered to be "Roundup-Ready":
 Bacterial gene inserted which gives the plants
 resistance to *glyphosate*, the active ingredient in the
 pervasive herbicide Roundup

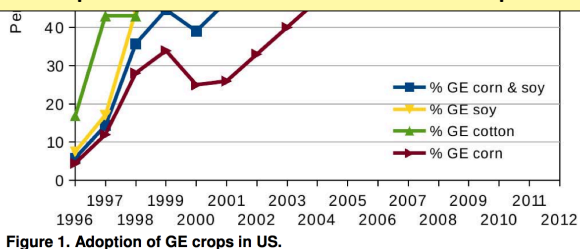
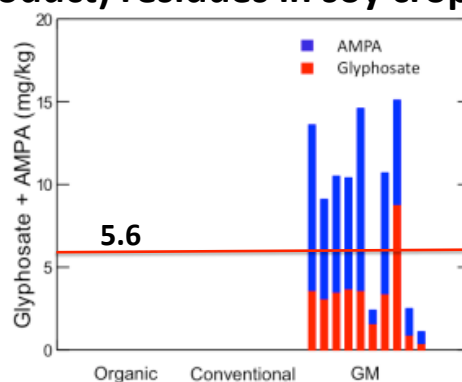


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Glyphosate, Aluminum and Arsenic in Soy

Study of glyphosate and AMPA (breakdown product) residues in soy crops*



“Another claim of Monsanto's has been that residue levels of up to **5.6 mg/kg** in GM-soy represent “...*extreme levels*, and far higher than those typically found” (Monsanto 1999).

*Bøhn et al., Food Chemistry 153(15), 2014, 207-215

Moms Across America Experiment*

- Glyphosate was detected in feeding tube liquid given to babies and children with cancer in hospitals
- 30% of PediaSure samples from the same batch tested positive at levels > 75ppb



*http://www.momsacrossamerica.com/glyphosate_found_in_feeding_tube_liquid

Aluminum in Soy

- Aluminum content of soy infant formulas ranges from 600 to 1300 ng/mL, compared to 4-65 ng/mL in human milk*
 - Derived from mineral salts used in soy production
 - Can cause reduced skeletal mineralization in vulnerable preterm infants**
- Might glyphosate enhance bioavailability of aluminum in brain leading to neurotoxicity?***

*J Bhatia and F Greer, Pediatrics 2008, 121, 1062-8.

**Bhatia_2008_soy_formula_infant_feeding_review.pdf

***S. Seneff et al., Agricultural Sciences, 2015, 6, 42-70

Glyphosate and Aluminum: Partners in Crime*

- Glyphosate induces pathogens like *C. difficile* in gut, leading to *leaky gut syndrome*
 - *C. diff* produces *p-cresol* which promotes aluminum uptake by cells
 - p-Cresol is a known biomarker for autism
 - p-Cresol is an important factor in *kidney failure* which leads to aluminum retention in tissues → dementia
- Glyphosate promotes *calcium uptake* by voltage-activated channels
 - Aluminum gains entry as calcium mimetic

*S. Seneff et al., *Agricultural Sciences*, 2015, 6, 42-70

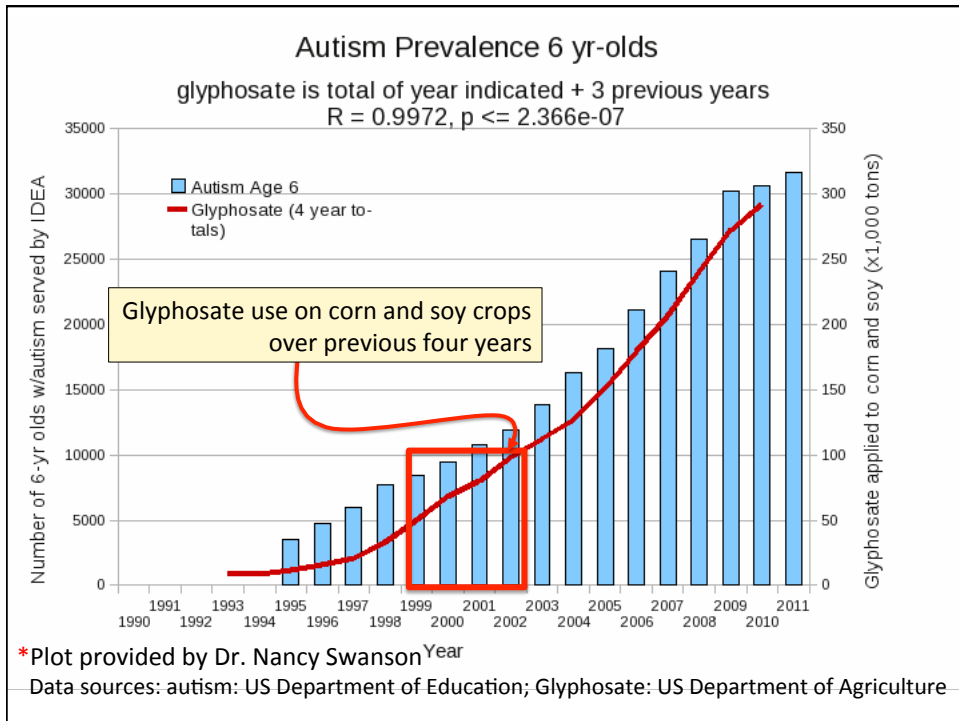
Arsenic in Soy*

- Study comparing breast-fed with formula-fed infants
- Formula-fed infants had 5.5-fold higher arsenic intake and *7.5-fold higher* arsenic in urine
- Formula powder as well as water were contributory

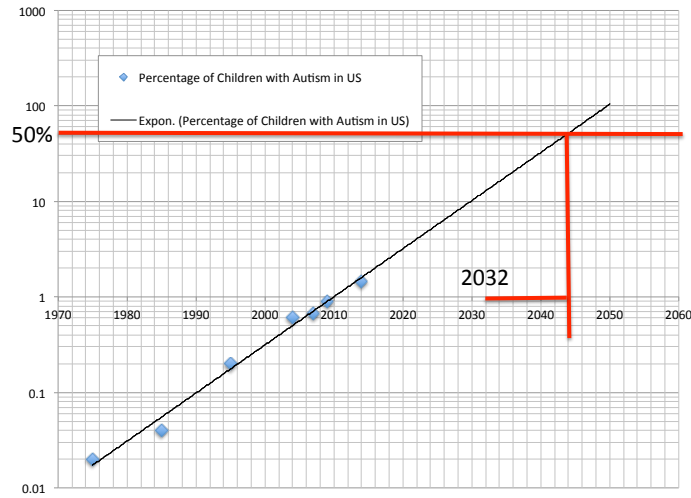


*CC Carignan et al., *Environmental Health Perspectives*, February 23, 2015
[Epub ahead of print]

Health Consequences

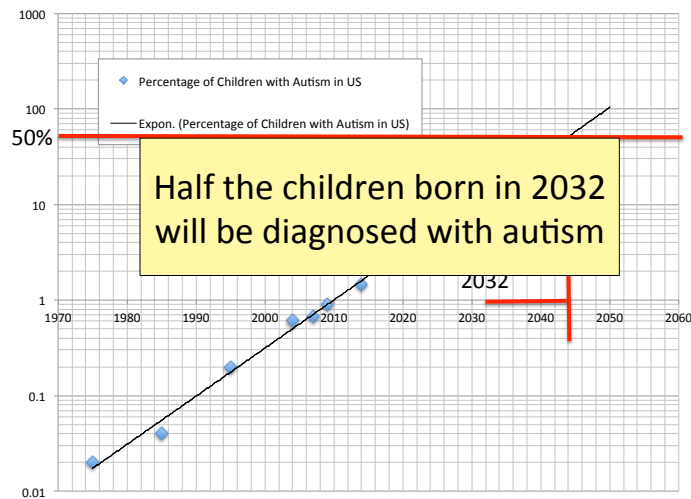


Percentage of children with Autism in the US*



*Data provided by CDC for 12-year-old children in the US

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Glyphosate in GM Soy: Likely Consequences

- Glyphosate disrupts gut microbes, leading to inflammatory gut and leaky gut
- Glyphosate chelates metals – like phytates
- Glyphosate is an endocrine disruptor, like the isoflavone, genistein
 - Both genistein and glyphosate increase growth rate of breast cancer cells
 - Glyphosate at parts per trillion concentration*
- *Glyphosate formulations likely contain oxalate*

* S. Thongprakaisang et al., Food Chem Toxicol. 2013 Jun 8. S0278-6915(13)00363-3.

Monsanto Patents: 2002-2010: Pesticide Compositions Containing Oxalic Acid

“[origin: WO02069718A2] Pesticidal concentrate and spray compositions are described which exhibit *enhanced efficacy* ... More particularly, the present invention relates to a method of enhancing the herbicidal effectiveness of *glyphosate* concentrate and tank mix formulations containing one or more surfactants through the addition of *oxalic acid*.”



US007723265B2

(12) **United States Patent** (10) **Patent No.:** **US 7,723,265 B2**
Xu et al. (45) **Date of Patent:** ***May 25, 2010**

(54) **PESTICIDE COMPOSITIONS CONTAINING OXALIC ACID**
(75) Inventors: **Xiaodong C. Xu**, Valley Park, MO (US); **Renald J. Brinker**, Ellisville, MO (US); **Tracy L. Reynolds**, Ballwin, MO (US); **William Abraham**, Wildwood, MO (US); **Jeffrey A. Graham**, Wildwood, MO (US)
(73) Assignee: **Monsanto Technology, St. Louis, MO (US)**

4,140,513 A 2/1979 Pull
4,159,901 A 7/1979 Boettman et al.
4,161,590 A 7/1979 Moeller
4,161,602 A 7/1979 Moeller
4,215,765 A 2/1982 Large
4,405,531 A 9/1983 Franz
4,431,765 A 2/1984 Doshak et al.
4,881,026 A 11/1984 Pradylla
4,507,250 A 3/1985 Bakel
4,958,901 A 6/1990 Sargent, Sr. et al.
5,118,444 A 6/1992 Nguyen
5,317,003 A 5/1994 Kassebaum et al.

**Monsanto Technology,
St. Louis, MO**

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"[origin: WO02069718A2] Pesticidal concentrate and spray

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surfactants through the addition of *oxalic acid*."

Oxalic acid and oxalate are the same thing!



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4,481,026 A	11/1984	Pristifla
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**Monsanto Technology,
St. Louis, MO**

Autism Linked to Oxalate Crystals*

- Crystals of oxalate form kidney stones and cause great discomfort
- Study has shown at least 3-fold higher serum and urinary levels of oxalate in autistic kids**



*William Shaw, The Role of Oxalates in Autism and Chronic Disorders WAPF, March 26, 2010

**J Konstantynowicz et al., European Journal of Paediatric Neurology 16(5), 2012, 485-491.

Soy Formula Linked to Seizures in Autism*

"There was a 2.6-fold higher rate of febrile seizures, a 2.1-fold higher rate of epilepsy comorbidity and a 4-fold higher rate of simple partial seizures in the autistic children fed soy-based formula"



*CJ Westmark, PLOSOne March 12, 2014, DOI: 10.1371/journal.pone.0080488.

Health effects of **GM Soy Imports** in China*

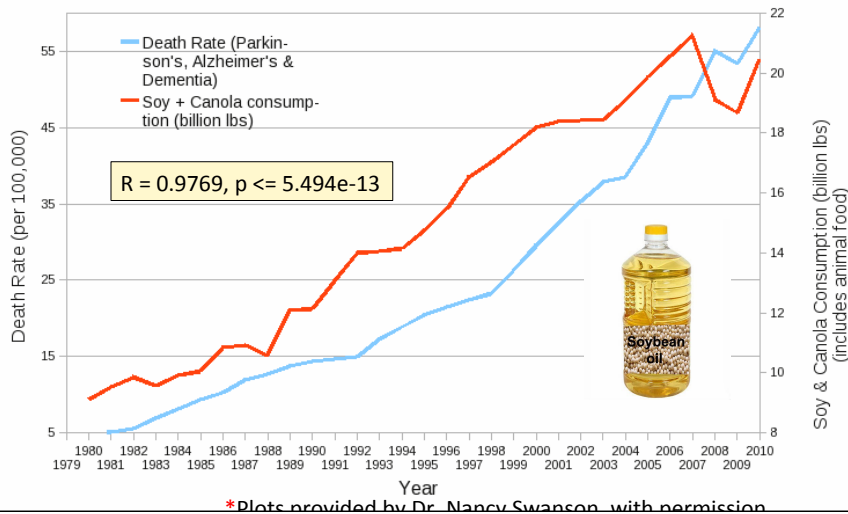
China has now switched from growing its own soy to importing GM soy from the West

- **Autism rates** have increased 100 times during the past 20 years
- **Parkinson's disease** in China has increased over 20 fold during the past 20 years
- **Infertility** rates have risen sharply:
 - 2012: 15.6%
 - 2002: 8%
 - 1972: 3%

*Mi Zhen-yu, Former Vice President, Academy of Military Science
English translation by Chen I-wan
blog.sina.com.cn/s/blog_4bb17e9d0102edhg.html

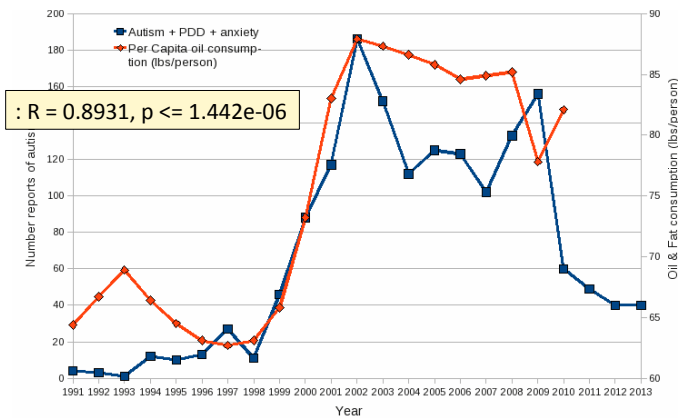
USDA Data on Soy and Canola Oil Consumption: Human + Animal*

Parkinson's, Alzheimer's & Senile Dementia
combined death rates (per 100,000)



VAERS Database Analysis Compared to Human Oil Consumption*

Children under 6 with autism, pervasive developmental delay or anxiety
– counts of events in VAERS database

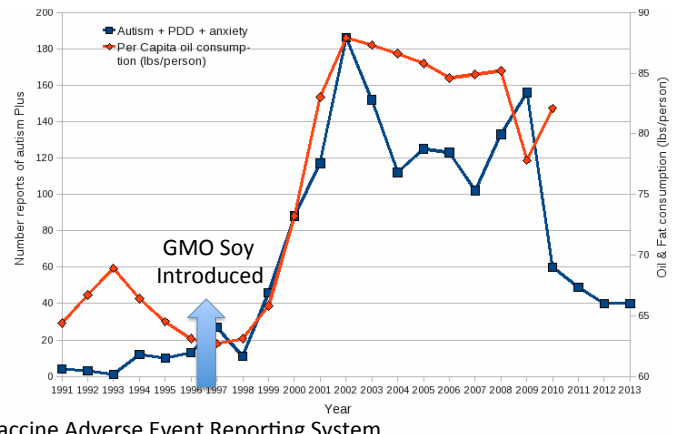


VAERS = Vaccine Adverse Event Reporting System

* Plots provided by Nancy Swanson with permission

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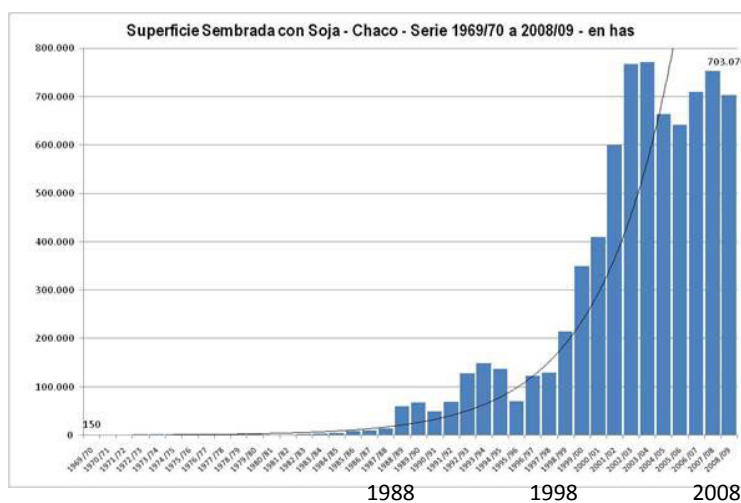
**Cultivating
Genetically Modified Soy
is Dangerous**

Cultivating GM Soy Is Dangerous to Your Health!*

- Increasing rates are observed in cancer, birth defects, miscarriages, mental disabilities, endocrine and immune disorders suffered by rural populations in Argentina near GM Soy crops
- Glyphosate is the most commonly used toxic agrochemical in Argentina, comprising 64 % of total sales, and 200 million litres of glyphosate were applied during the last crop season

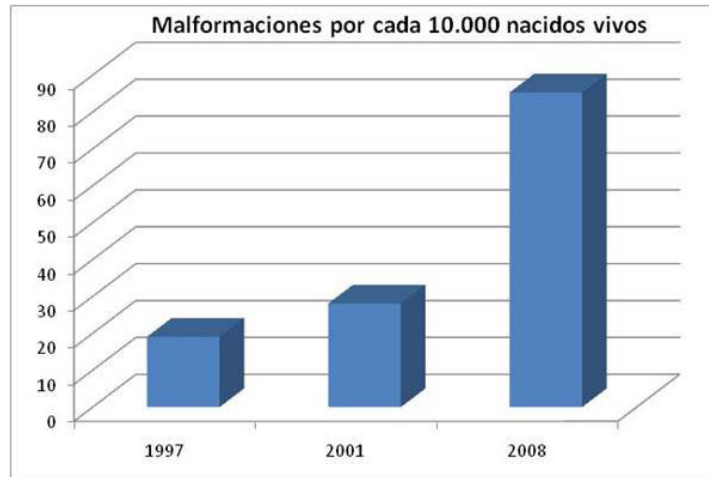
*http://www.i-sis.org.uk/Devastating_Impacts_of_Glyphosate_Argentina.php

Hectares of Land Dedicated to GM Soybean Cultivation, Chaco Argentina*



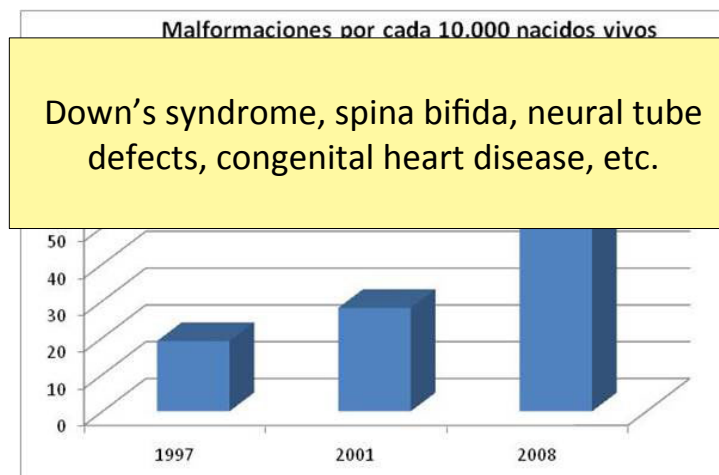
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Rate of Birth Defects in Children Born in Chaco, Argentina*



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Summary

- Soy is an unhealthy food, especially GM Roundup-Ready soy used in food processing
 - Soy contains mineral-chelating phytates, estrogenic genistein, and oxalate
 - GM soy contains high concentrations of glyphosate, with many health consequences
 - Soy is also high in aluminum and arsenic
- Over 90% of the soy cultivated today is genetically modified to resist glyphosate
- Many negative health consequences
 - Autism, dementia, Parkinson's disease, breast cancer, infertility, etc.
- People exposed to soy crops suffer from negative health effects, including high rate of congenital defects