



WEEDS and HERBICIDES - GLYPHOSATE

Part 1

Last December (2018) I attended an advanced soil conference up in Kansas City. The presenters were scientists from several major universities, the Center for Disease Control to the head of the USDA research station. The over whelming message is we have to change the toxic chemical methods we use in agriculture and horticulture if we are going to survive as a species. A couple days of the conference were spent on the problems both in horticultural and with health (animal and human) related to common herbicides. Since Round-Up is the most used herbicide we will start here.

Over the last few weeks, we have seen additional countries like France, Netherlands, Sri Lanka and others continue to ban the sale and use of an herbicide called Round-Up. The active ingredient in Round-Up is a very toxic chemical called "Glyphosate".

A few weeks ago, the World Health Organization declared Glyphosate a probable carcinogen. Research has been appearing for decades showing that Round-Up is related to many types of cancer and dozens of animal and human health issues. People and independent researchers have known the truth for years. As an article on the Alternet stated, *"Industry and government regulators have conspired to bury copious evidence for toxicity for decades."* At the conference in a side conversation with a USDA researcher (whom was retiring in a couple weeks) whom stated, "I can finally tell the truth without getting fired and what scares me the most is the inert ingredients found in Round-Up".

Over the last decade or so I have collected dozens (hundreds?) of papers and a few books on the dangers and health problems caused by Round-Up. I have so much information that I am not even sure where to begin. Since this is primarily a gardening



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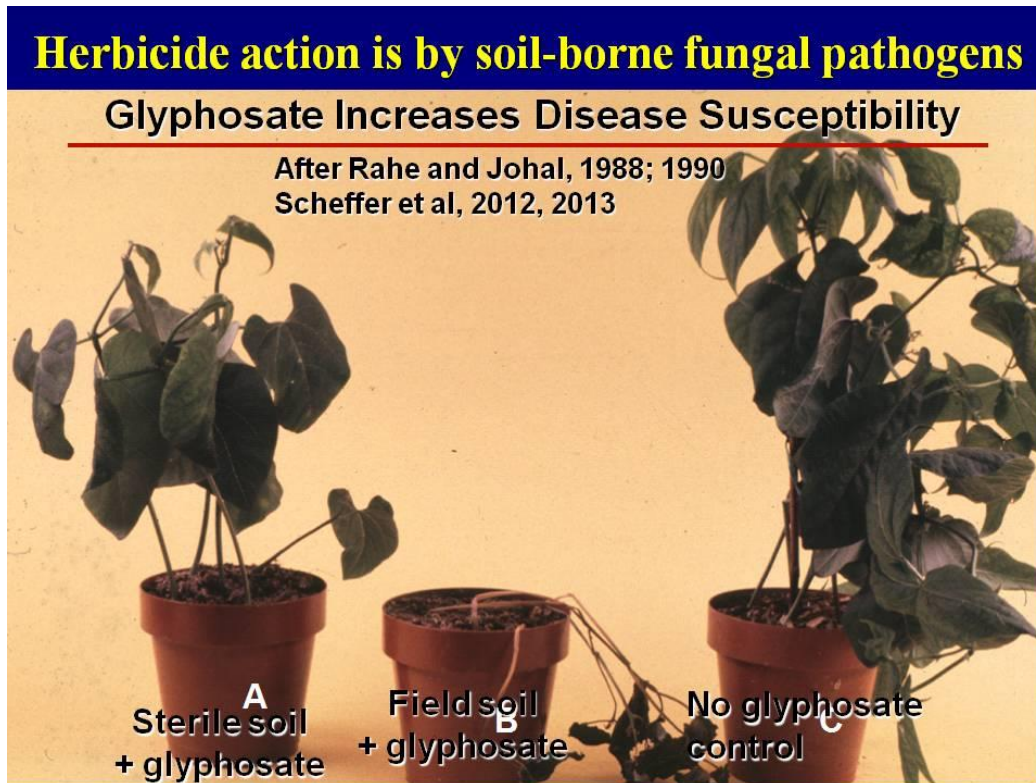
newsletter I will begin with the horticultural side and later discuss the numerous health problems and environmental destruction it causes.

Glyphosate has two main modes of action to kill plants. First it chelates major and minor nutrients and prevents plants and microbes from taking them up. These include phosphorus, potassium, iron, calcium, magnesium, manganese, zinc, copper, and others. This greatly weakens the weeds (plants) and slows or stops microbial activity as they need these nutrients also. It also chelates many enzymes of both plants and microbes and prevents them from working.

Secondly Glyphosate stimulates the rapid growth of soil pathogens! Some of these are Fusarium, Phytophthora, Pythium, Rhizoctonia, and dozens more (over 40 plant pathogens have been documented as stimulated by Glyphosate). Now the plant in its weakened state easily succumbs to the soil diseases and is killed. In addition, it has been found that Glyphosate stimulate soil diseases to jump plant species that previously were not affected and increases the virulence of the disease.

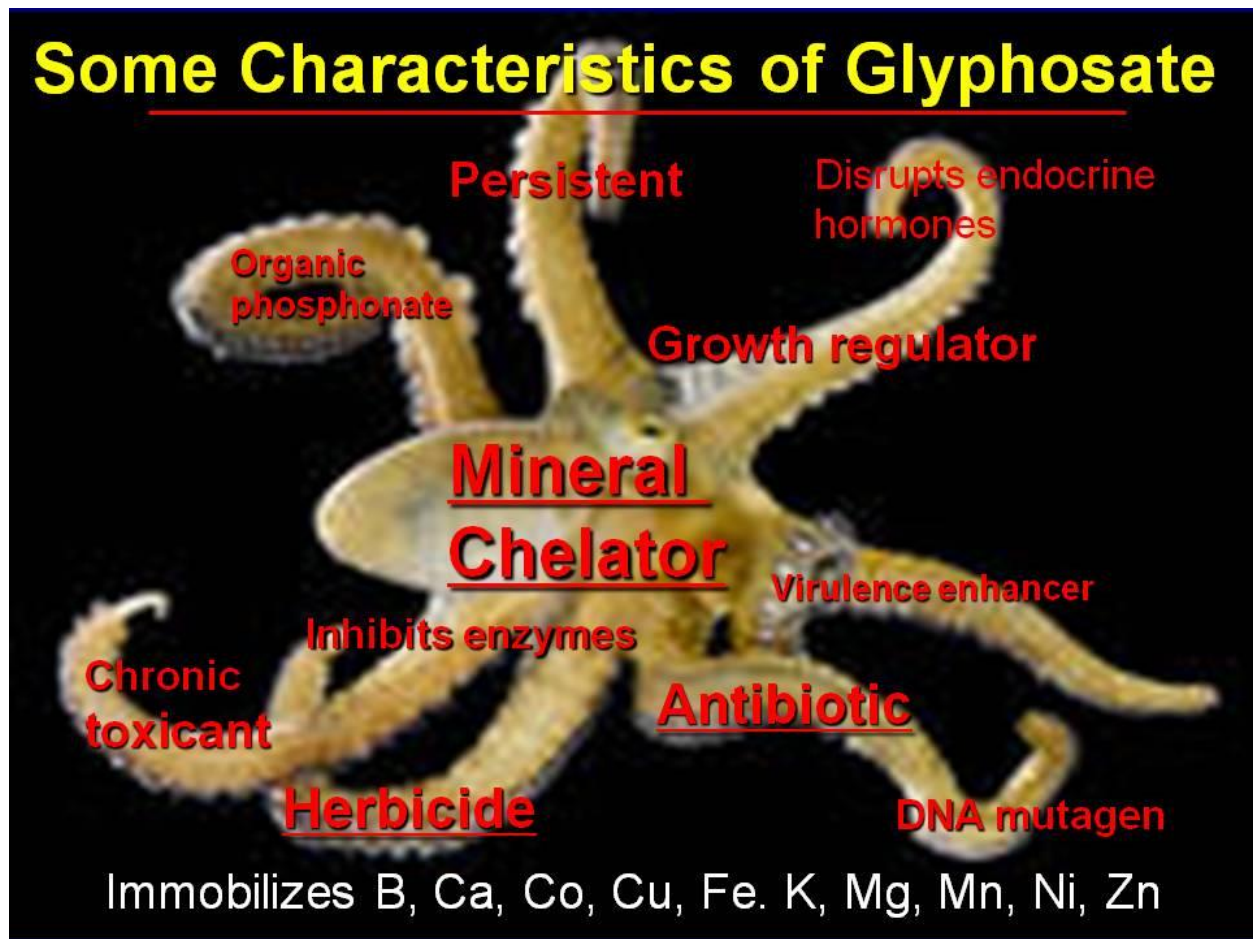
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This slide is courtesy of Dr. Don Huber, Purdue University



Note: In the sterile soil with no soil pathogens present in the soil the plant was not killed only weakened due to nutrient tie-up. When the field soil with microbes (both good and bad) was used that allowed pathogens to grow the plant was killed.

This slide is courtesy of Dr. Don Huber, Purdue University



A few other side effects of using Round-Up are:

- as microbial activity declines then soil structure also declines
- less air and water in soil leads to secondary problems
- eliminates the bacteria that control human pathogens like salmonella
- causes a reduction of plant growth hormones (auxins - 96%, gibberellic -32%, etc.)

- the soil pathogens can easily spread to areas adjacent to where Round-Up was applied and cause problems for years (see slide below)

This slide is courtesy of Dr. Don Huber, Purdue University

Some SYMPTOMS of Glyphosate Damage
(Sub-herbicidal depending on rate and exposure time)

- ✓ Low vigor, stunting, slow growth
- ✓ Leaf chlorosis (yellowing) - complete or between the veins
- ✓ Leaf mottling - sometimes with necrotic flecks or spots
- ✓ Leaf distortion - small, curling, strap, wrinkling, 'mouse ear'
- ✓ Abnormal stem proliferation ('witches broom')
- ✓ **Bud, fruit abortion**
- ✓ Retarded regrowth after cutting (alfalfa, perennial plants)
- ✓ Lower yields, lower mineral value
- ✓ Predisposition to infectious diseases - **NUMEROUS!**
- ✓ Predisposition to insect damage
- ✓ Induced abiotic diseases - drought, winter kill, sun scald
- ✓ Root stunting, poor growth, inefficient N-fixation and uptake
- ✓ **Bark cracking**

after Univ. of Hawaii; Univ. of Connecticut, Ohio State University



Part 2 - "Round-Up"

In the book "When Weeds Talk", Brookside Laboratories ran tests that only one application of the herbicide tied up 84 pounds of phosphate per acre! This nutrient tie-up leads to compaction and decreases the depth of available topsoil for roots to grow. With a smaller root zone, the gardener must water more often and fertilize more often. It is then often recommended to aerate the soil to break up the compaction, another cost. The tight compacted soils favor disease development and of course, more weed pressure (one of the roles of the plants we call weeds is to loosen tight compacted soils). The process of using just one application of herbicide greatly increases the problems, time and money required to take care of your landscape.

Experienced gardeners know that plant growth hormones are very important to have plants that grow fast and are healthy. One of the most powerful of these hormones is "auxins". One study (L.T. Biosyn Labs) found a 96% reduction in this hormone after Round-up application.

Similarly, many enzymes required for plant health are suppressed as shown in the chart below.

This slide is courtesy of Dr. Don Huber, Purdue University

Enzyme	-Fold change
Taurine ATP-binding system	11.07
Glutamate synthase	6.06
Aminomethyl transferase	5.58
Tyrosine aminotransferase	4.36
Thioredoxin reductase	4.20
NADH dehydrogenase	4.04
Riboflavin synthase	3.57
3-phosphoadenosine-5-phosphosulfite reductase	3.75
Membrane bound ATP synthase	3.67
Acetolactate synthase	3.59
Pyridine nucleotide transhydrogenase	3.50
Shikimate kinase	3.36
3-deoxy-D-arabino-heptulosonate-7-phosphatase	3.38
Sulfite reductase	3.19
RNAase	3.18
Glutathione S-transferase	3.04
D-amino acid dehydrogenase	3.00
Glucose-6-phosphate dehydrogenase	2.67
ATP sulfurulase	2.65
5-enolpyruvylshikimate-3-phosphate synthetase (EPSPS)	2.62

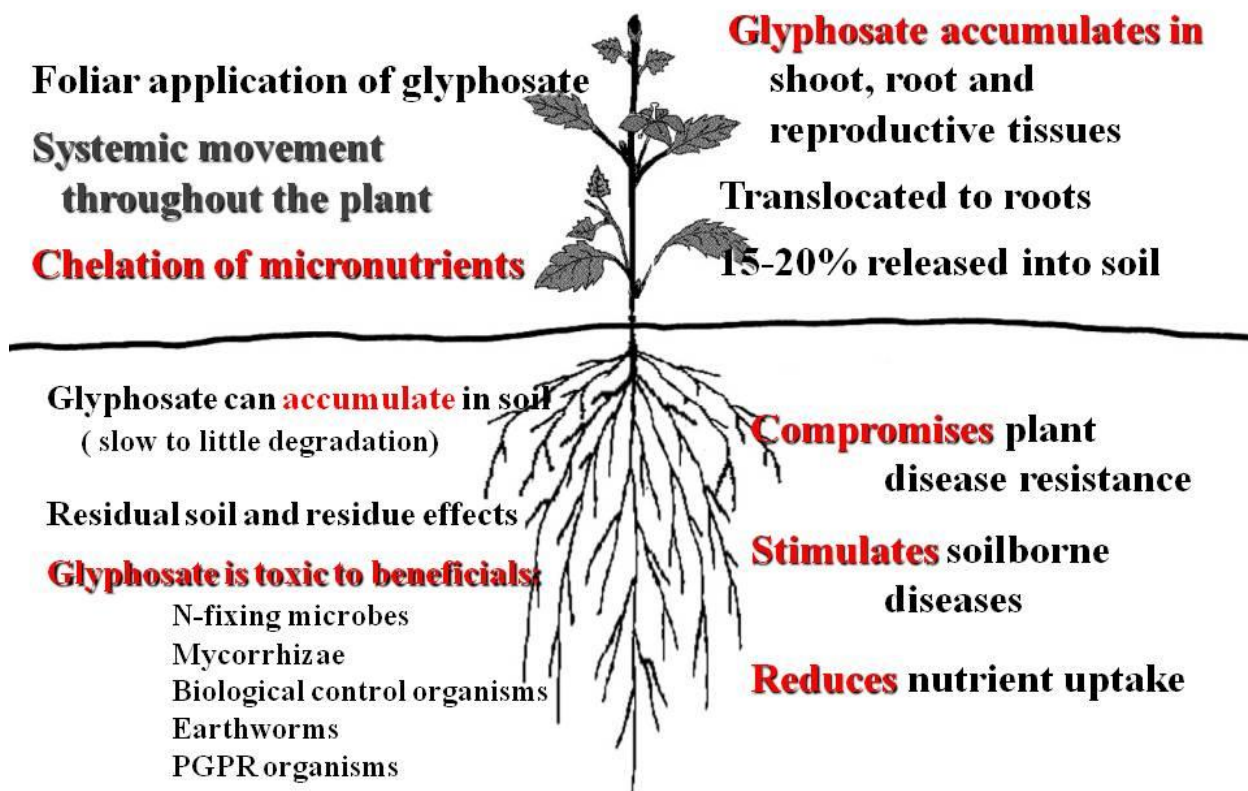
The combined effects of Glyphosate from nutrient tie-up, increased pathogens in the soil, reduction in plant hormones, reduction in enzyme efficiency, etc. create weak plants that are very susceptible to insects and diseases.

We have all heard the phrase, "survival of the fittest". In nature the microbes that we call diseases or pathogens and the insects we call pests, have a role to play. Their job is

to get rid of weak and unhealthy plant species so only the strong survive. Hence, they attack herbicide treated plants.

The slide below is pictorial summary of all the damage done by Glyphosate.

This slide is courtesy of Dr. Don Huber, Purdue University

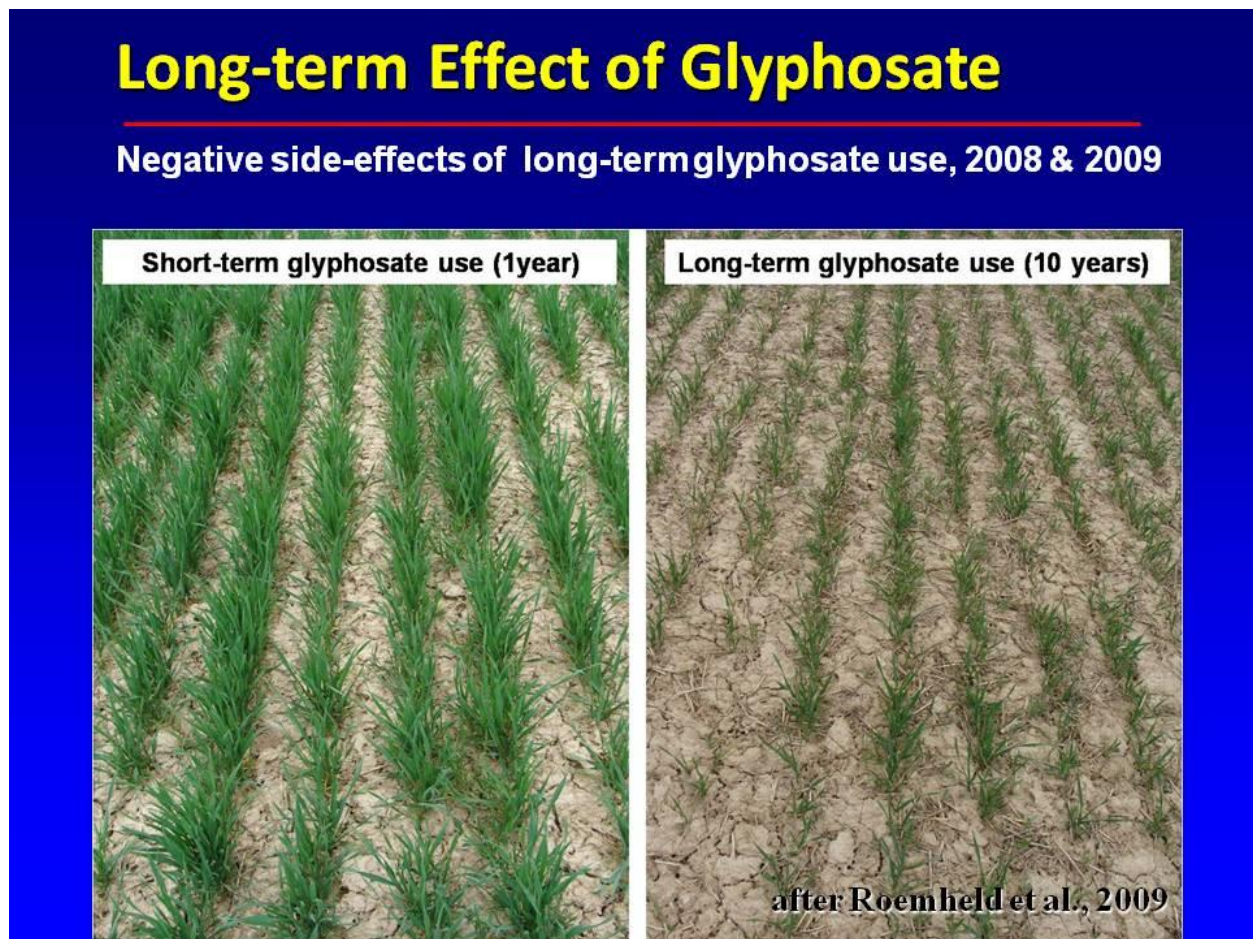


Schematic of glyphosate interactions in soil

Round-Up is slow to breakdown in the soil, hence the negative effects tend to be cumulative. The slide below of a wheat crop illustrates this effect. The first year Round-Up was applied the wheat crop germinated and grew, however by the 10th year of using

Round-Up the seeds could not germinate and the ones that did had problems growing and were not healthy.

This slide is courtesy of Dr. Don Huber, Purdue University



Note: Don Huber, PhD is now Professor Emeritus of Plant Pathology at Purdue University. He has over 50 years of agricultural research on soil and plant pathogens and microbial ecology. He has served as Associate Director of the Armed Forces Medical Intelligence Center after 41+ years of active and reserve duty with the rank of Colonel.



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He has served as a consultant for the Center for Disease Control and many other organizations.

It has been stated that Glyphosate is many times more toxic than DDT and in conjunction with GMO crops a threat to the survival of humanity.

Part 3 - "Round-Up"

Today I want to look at the consequences of using Round-Up and Round-Up ready Genetically Modified crops.

Scientists at the University of Caen in France found that human placental cells are very sensitive to this herbicide at concentration levels lower than used in agriculture and that it disrupts human sex hormones and lead to reproductive problems. Environmental Health Perspectives, June 2005, "Differential Effects of Glyphosate and Round-Up on human placenta cells and aromatase".

Glyphosate herbicides cause genetic damage and harm to the immune systems in fish, and in frogs genetic damage and abnormal development. Ecological Applications, April 2006, "The impact of insecticides and herbicides on the biodiversity and productivity of aquatic communities"

A 2007 study conducted by Pontifical University in Ecuador found a higher degree of genetic damage in populations exposed to glyphosate than those whom lived 50 miles away. A 2009 study in the Journal Toxicology, researchers from the University of Caen in France found that in human cells glyphosate disrupted hormones. This was at a level of only 0.5 parts per million (ppm) which is 800 time less than what is found on our food.

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In 2010 in the Journal Chemical Research in Toxicology another *low-dose* study found that glyphosate exposure caused malformations in frog and chicken embryos.

A 2012 review of several studies by the King's College London School of Medicine found evidence that Round-Up caused birth defects.

Another of the claims of safety is that glyphosate targets an enzyme (EPSP synthase) that does not exist in humans. However, this enzyme is present in the bacteria that live inside people. These bacteria are intimately linked to many physiological functions in the body that are crucial to human health. This disruption has been linked to many illnesses.

Monsanto's claim that glyphosate only targets one enzyme is false as it was originally patented in 1964 as an enzyme disrupter. Additionally, many metals are co-factors for many enzymes and cannot work without them. Hence the chelating properties of glyphosate locks up these metals and prevent the enzymes from working.

A report in the Health Freedom Alliance stated that an estimated one Billion pounds a year of Round-up is sprayed on our food crops. This results in the average American eating several hundred pounds of glyphosate-contaminated food every year!

Dr. Samsel a research chemist whom helped author the Chemical Hazard Response Information System (CHRIS) manual for the US Coast Guard. He was also a farmer whom used Round-Up. He began to question the safety of glyphosate when he noticed his own urine killed plants. He went on a diet of only organic foods and the herbicidal effect of his urine went away. He convinced the USDA to release the results from over 400 samples of soybeans that were tested where over 90% of them had glyphosate residues on them. He also noticed that the data had been "cherry picked" by the USDA so that EPA limits for safety were not exceeded. The report also ignored the very toxic

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breakdown product of glyphosate (AMPA) which was found at higher levels than the glyphosate.

Dr. Samsel also found out that glyphosate had been also been patented as a biocide and an antibiotic. During his research into glyphosate, he found that Monsanto knew as far back as 1981 that it was carcinogenic in animal studies. A paper by the Health Freedom Organization may be found at www.healthfreedom.org/researcher-reveals-monsanto-has-knowledge.

A recent study in the Surgical Neurology International found that on cows fed genetically modified Round-Up ready feed, they developed a severe depletion of serum Manganese (Mn) which prevented many biological systems from working properly.

Other studies have Round-Up linked to many human health problems. A study in the journal Entropy found Round-Up exposure linked to the development of Parkinson's disease. Researchers at the Massachusetts Institute of Technology (MIT) over the last couple years in multiple published studies have linked Round-Up exposure to gastrointestinal disorders, obesity, diabetes, heart disease, depression, infertility, autism, cancer and Alzheimer's disease.

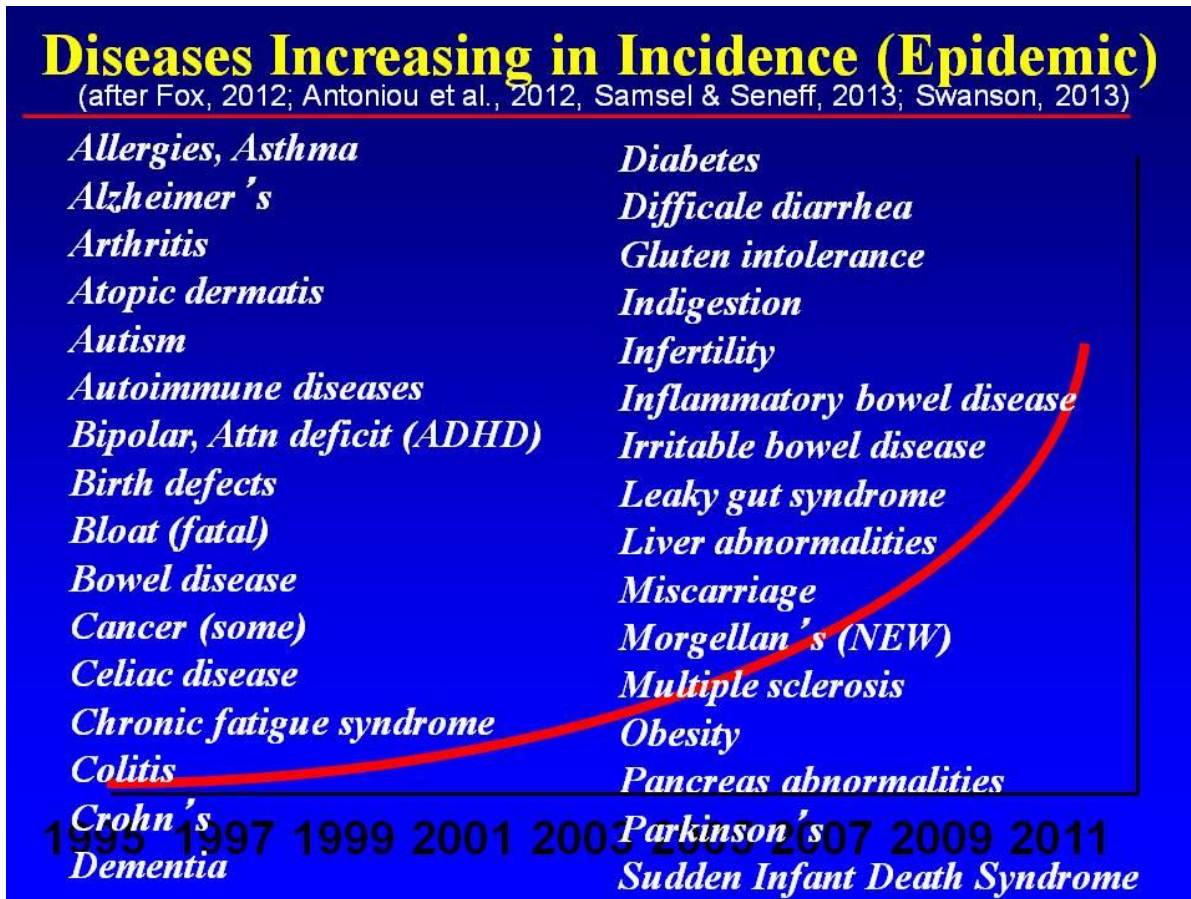
One of the promises (lies) of GMO crops was less chemical usage would be required. **In the U.S. in 1992 only 11,000 tons of glyphosate were applied. In 2007 it had increased to 88,000 tons! Today it is estimated that hundreds of thousands of tons are used. This means more people are exposed to a carcinogenic chemical in greater amounts.**

So, what has happened since the introduction of Round-UP ready GMO foods?

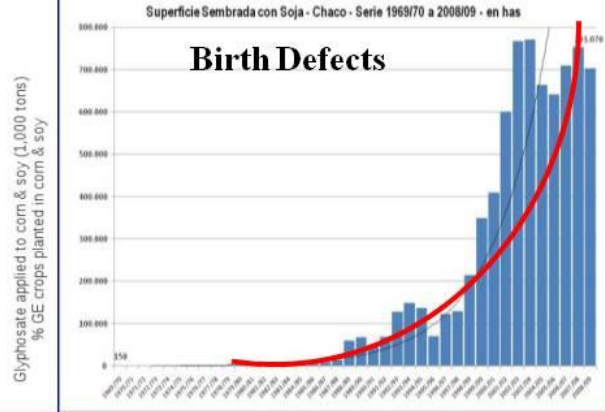
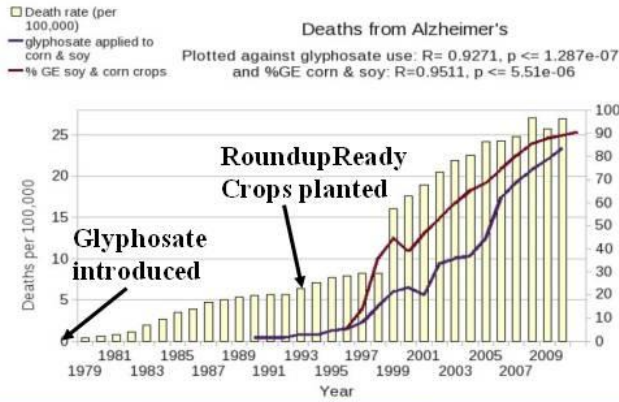
Below are some of the slides shown at the soil conference linking Round-Up to health problems.

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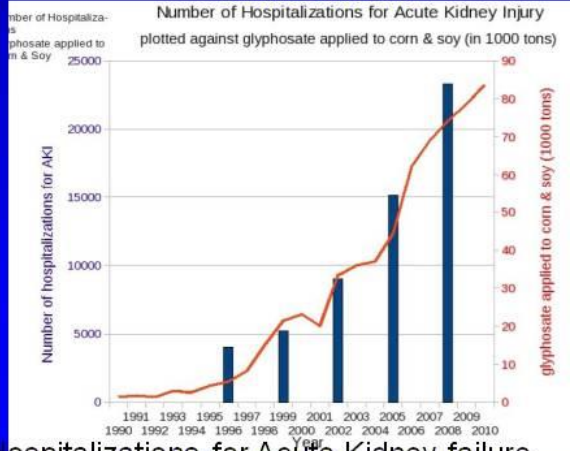
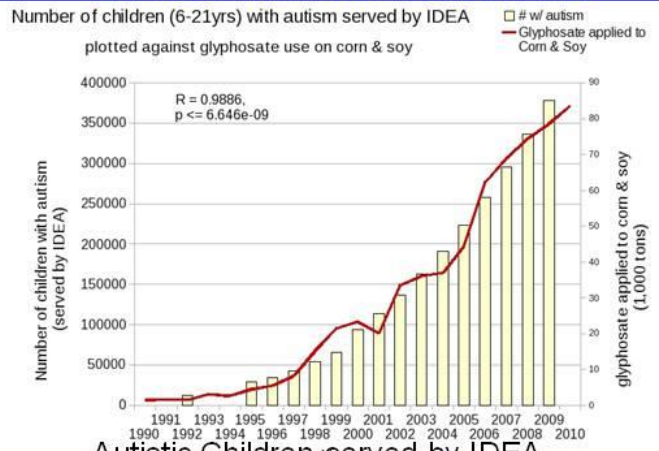
These following slides are courtesy of Dr. Don Huber, Purdue University



Many health problems have increased in direct proportion to the increased usage of Glyphosate.



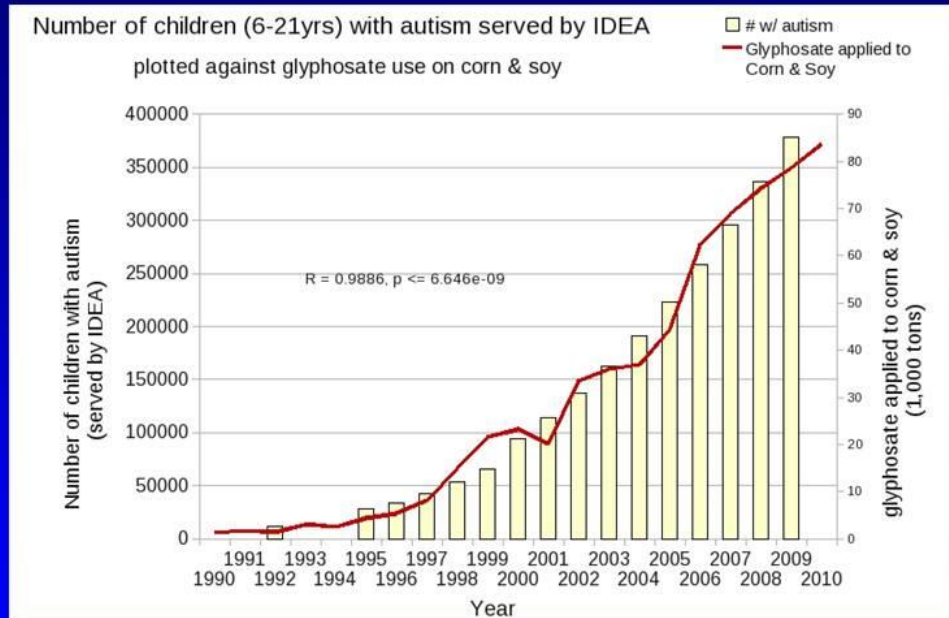
Deaths from Alzheimer's Disease Birth Defects



Autistic Children served by IDEA Hospitalizations for Acute Kidney failure

It is amazing how the increased health problems directly correlate to Round-Up application.

Glyphosate and Autism*



Pearson Correlation Coefficient = 0.99

*Dr. Nancy Swanson, <http://www.examiner.com/article/data-show-correlations-between-increase-neurological-diseases-and-gmos>

Chronic Toxicity of GMO Crop or Roundup®

GMO and/or Roundup cause adverse health effects
 50% males & 70 % females died prematurely
 (Tumors developed after 4-7 months vs 23 mo in control)
 Females = 2-3 X mammary tumors & pituitary disorders
 Males = kidney & skin tumors, liver & kidney damage
 All GMO and RU had digestive disorders

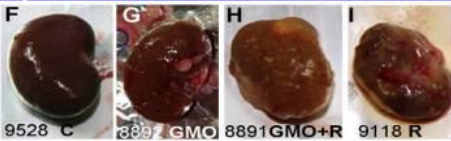
Livers (L) UTC; (R) GMO+R



Mammary cancer: GMO, GMO+RU, RU @ (1 ppb)



Kidney damage (below)
(L) UTC GMO GMO+R RU



Look at the tumors that developed when the mice were fed GMO corn!

Glyphosate in Human Breast Milk Mom' S Across America Study - 2014

Glyphosate Concentration (PPB)

Urine		Breast Milk	Drinking Water (MCL)		5 % Increase ^x in Birth Defects Mis-carriage	
U.S.	Europe		U.S.	Europe		
18.8	0.16	76-166	700	0.70	0.028*	0.048**

*PPM, had 0.2 PPM in feed

**PPM, had PPM 1.1 PPM in feed

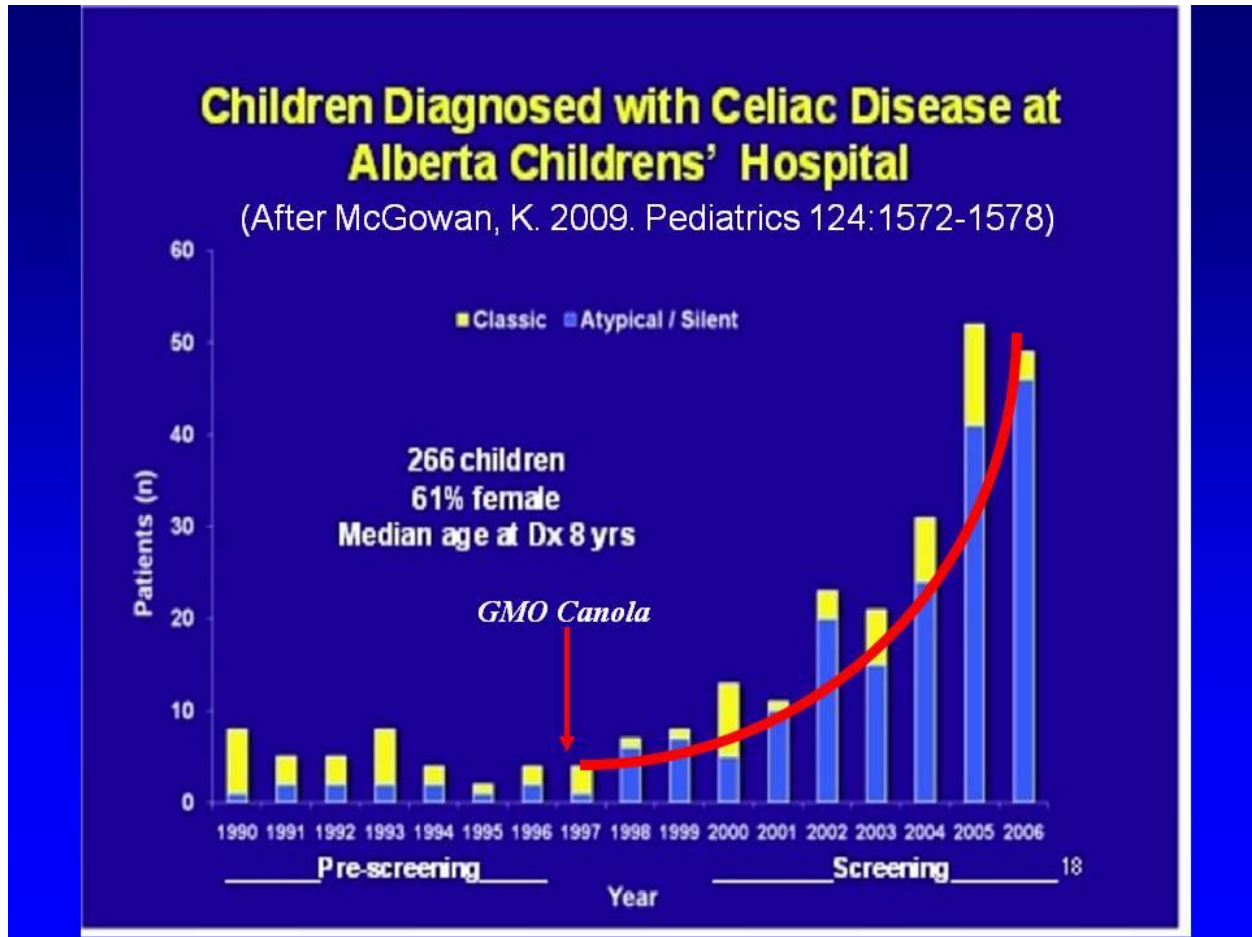
^xPig study

From 10-400 PPM permitted in food products

0.1 PPM toxic to beneficial GI microbials



What is Glyphosate in Round-Up doing to our children?



There is a definite correlation of when genetically modified canola was introduced in Canada and the disease.

Direct Toxicity of Glyphosate

Rate (ppm)	System affected	Reference
0.5	Human cell endocrine disruption	Toxicology 262:184-196, 2009
0.5	Anti-androgenic	Gasner et al, 2009
1.0	Disrupts aromatase enzymes	Gasnier et al, 2009
1-10	Inhibits LDH, AST, ALF enzymes	Malatesta et al, 2005
1-10	Damages liver, mitochondria, nuclei	Malatesta et al, 2005
2.0	Anti-Oestrogenic	Gasnier et al, 2009
5.0	DNA damage	Toxicology 262:184-196, 2009
5.0	Human placental, umbilical, embryo	Chem.Res.Toxicol.J. 22:2009
10	Cytotoxic	Toxicology 262:184-196, 2009
10	Multiple cell damage	Seralini et al, 2009
10	Total cell death	Chem.Res.Toxicol.J. 22:2009
All	Systemic throughout body	Andon et al, 2009
1-10	Suppress mitochondrial respiration	Peixoto et al, 2005
	Parkinson's	El Demerdash et al, 2001
	POEA, AMPA even more toxic	Seralini et al, 2009

In addition to the human and livestock health effects, Round-Up has also been linked to the decline in Monarch butterflies, as their primary food source (milkweeds) are very sensitive to this herbicide. It has also been linked to the decline in bees and is now believed to weaken their immune systems which makes them more susceptible to other factors and together it leads to colony collapse disorder.

How did this happen to people? It started back during the Reagan administration when GMO technology was in its infancy. The problems took off when in 1991 the White house (president) hired Michael Taylor a Monsanto attorney to oversee the creation of



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GMO policy for the FDA. He then went back to work for Monsanto as Vice-President for Public Policy from 1996-2000 when he was appointed the FDA's Food Safety Czar. As a result, the FDA approves GM foods based on industry studies and does no independent testing.

Note: Most industry test are 90 days or less with NO Long-Term Studies.

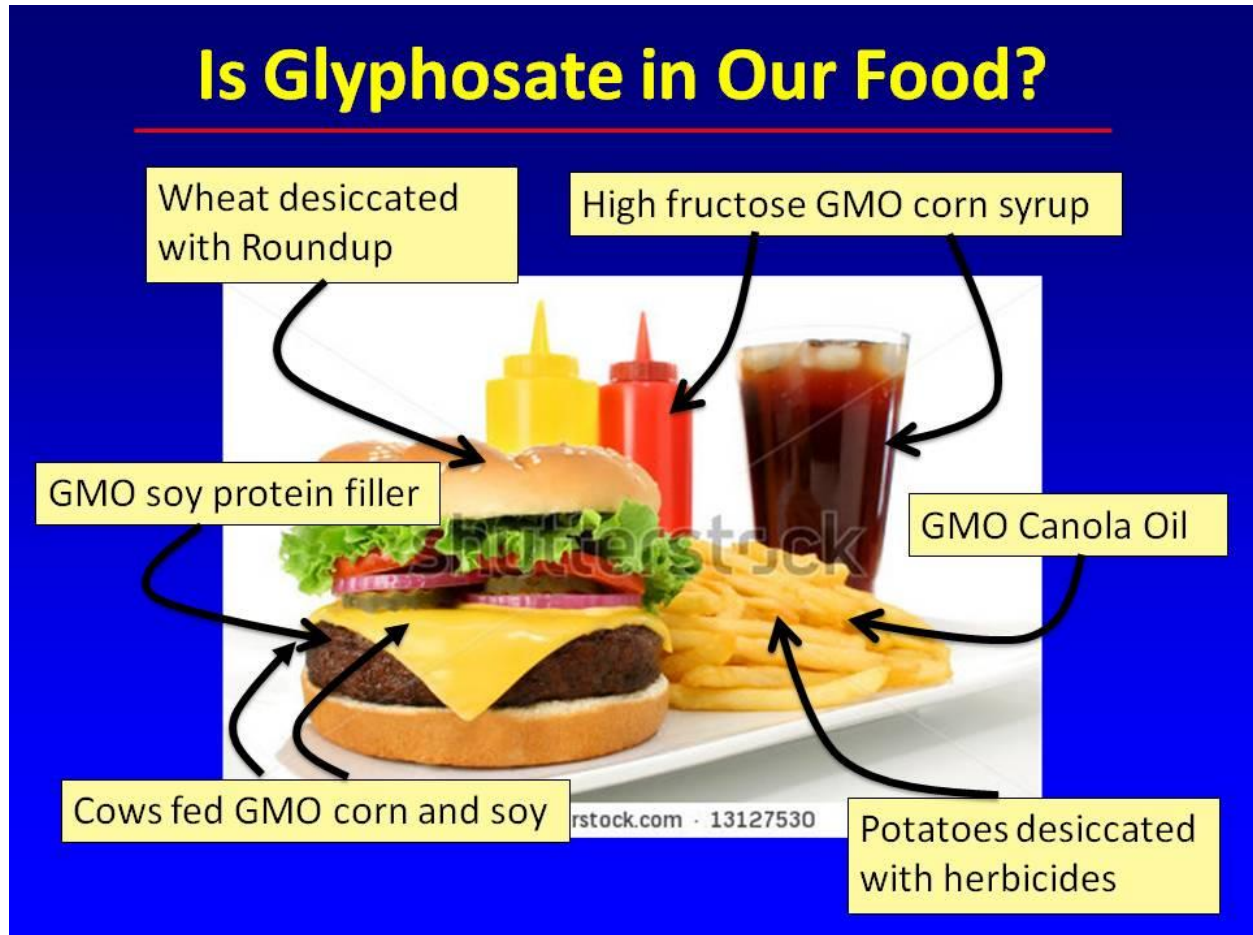
I am currently reading a very interesting book: Altered Genes, Twisted Truth, by Steve Druker that I will review when I am finished. He was an attorney representing an environmental organization that filed suit on the USDA. As a result, the courts gave him access to all the internal documents from the USDA and other agencies that showed they knew the dangers and covered them up.

Round-Up is in all of our food supply of conventionally grown food. That is why well over 90% of Americans want foods containing GMO ingredients labeled. With labeling we have "freedom of choice" to purchase GMO foods or not.

The slide below illustrates how easy it is for consumers to ingest Glyphosate as it now contaminates our food supply. This is another reason why gardeners need to raise as much fruit and vegetables as they can.

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Is Glyphosate in Our Food?



Due to the properties of Glyphosate there has been a tremendous reduction in the nutrient content of our foods. As a result, we have to eat more food to get the minerals our bodies need. The consequence is that we consume many times the calories that we need which leads to fat and diseases like diabetes.

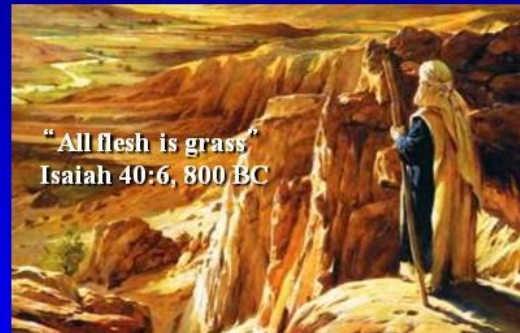
I remember reading a study 10-12 years ago based on USDA data that just due to hybridization, we have to eat 3 1/2 ears of corn to get the same amount of nutrition that one ear of corn had in 1903. We consume calories that make us fat but not

nutrition to make us healthy. We have developed an agricultural system that rewards agribusiness based on quantity not quality.

The slide below illustrates the reduction in essential nutrients in crops by just Round-Up.

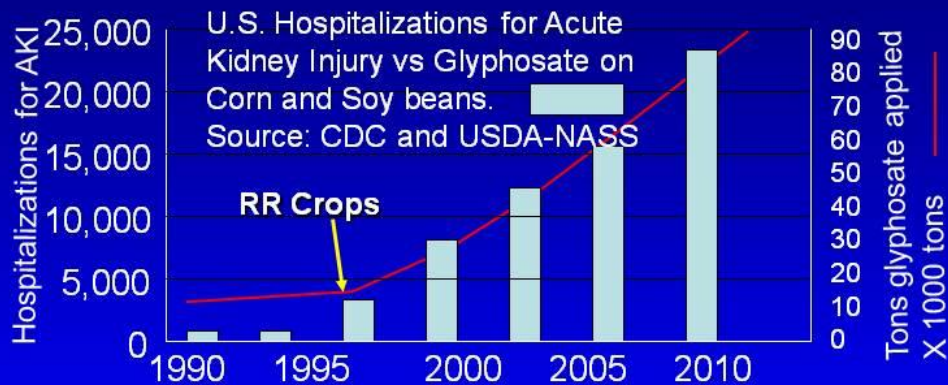
% Reduction in Alfalfa Nutrients by Glyphosate*

Nutrient	% reduction compared with Non-RR
Nitrogen	13 %
Phosphorus	15 %
Potassium	46 %
Calcium	17 %
Magnesium	26 %
Sulfur	52 %
Boron	18 %
Copper	20 %
Iron	49 %
Manganese	31 %
Zinc	18 %



*Third year, second cutting analysis; Glyphosate applied one time in the previous year

“The Perils of Ignoring History: Big tobacco Played Dirty and Millions Died. How Similar is Big Food?”
Brownell, K.D. and Warner, K.E. 2009. The Milbank Quarterly 87:259-294.



“1 in 4 El Salvadore sugar cane workers die of end-stage kidney failure”

“20,000 sugar cane workers die from end-stage Kidney failure in Panama and Niceragua”

“Glyphosate, hard water and nephrotoxic metals: ...Sri Lanka?”
 Jayasumana et al. 2014. Int. J. Environ. Res. Public Health 11:2125-2147

What can we as individuals do? Many states have passed or started the process to pass GMO labeling laws to protect their citizens since the USDA and EPA are not protecting us and are under the control of the giant agri-business companies.

In congress there is a bill (H.R. 1599) known as the "DARK act" (Deny Americans the Right to Know Act). It has passed the US House of Representatives and *prohibits states or other government agencies from passing bills that require labeling and protects citizens*. I was amazed that 275 of our representatives (45 Democrats and 230



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Republicans) whom report to the agribusiness companies and no longer represent the people that elected them have voted for it. There is a summary of the act [here](#).

[The New York Times had an article](#) listing how politicians voted if you want to find out how your representative voted:

What scares me the most about this bill is that it takes away one of our most important civil liberties, "Freedom of Choice". Without labeling there is no choice and the only way to protect our families is to purchase organic foods. So, what comes next if this encroachment on civil liberties is allowed to stand, "freedom of speech" or "freedom of the press" or "freedom to worship as we choose"?

God tells us in the Bible to "Love our neighbor as ourselves". This means we do not do things that harm them. In the book of James, we are told "Faith without works is dead". When we purchase and use products like Round-Up or when we purchase GMO foods, we are in direct violation of God's commandments, hence we suffer the consequences as shown above.

Thirty years ago, we thought we were doing something good and useful by using Round-Up. However, we now know the dangers and can make better choices and there is no excuse.

Part 4 – "Round-Up"

Ever since the WHO (World Health Organization) declared Round-Up a probable carcinogen more reports and research studies on the dangers are showing up almost daily.

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A couple readers have asked where they could learn more and for more references. I have included a few for reference, but the hundreds I have would clutter the articles and make reading difficult.

Research articles are scattered over hundreds of journals and they often charge for printing each article and often hundreds of dollars a year for each subscription. Hence there are several newsletters that scour the scientific literature for these papers. They will report the findings in everyday English (a Readers Digest version if you will) and provide citations and links back to the original paper.

A great e-newsletter on health, "Natural News" has an article on how this toxic chemical (glyphosate) is used on wheat as a drying agent and is in almost every bread product that is not organic. The article also has links to scientific reports by other researchers on the dangers of Round-Up. One of the reports also talks about the "inert" ingredients found in Round-Up products and the health effects they cause.

http://www.naturalnews.com/050583_glyphosate_wheat_bread_crop_contamination.html

Additionally, the Natural News website has a series of articles on the dangers of Glyphosate: <http://www.naturalnews.com/roundup.html>

There is another website that collects articles and information on the dangers of Round-Up: <http://www.glyphosate.news/>

This e-news service collects news stories from hundreds of Free Media sites that are not advertiser supported. One can click on a subject and see all the different articles on any subject. <http://fetch.news/>

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(Note: It has been reported that search engines like Google filter what they show you to comply with their sponsors wishes).

A paper published in the April 2014, Ecologist journal, "Glyphosate is a Disaster for Human Health" by Dr. Mae Wan Hoe states that even minute concentrations of glyphosate promotes the growth of breast cancer cells. In human bodies this chemical acts like a estrogen, which in combination genistein a common phytoestrogen found in soy beans had synergistic effects **enhancing breast cancer growth**. This is very disturbing since 90 % of all soybeans sold have been genetically engineered (Round-Up Ready) to tolerate much higher levels of this toxic chemical.

Another recent paper in the Journal of Food Chemical Toxicology "Glyphosate induces **human breast cancer cells growth** via estrogen receptors", June 2013.

Similarly, for men, many studies starting as far back as 1979 found an **increase in testicular cancer** in male rats and an increase in thyroid cancer in females.

An article summarizing findings from several studies "GMO Technology, **Glyphosate Toxicity Leaving Men Sterile**" by Wendy Banks, October 2012 can be found at <http://www.thesleuthjournal.com>. Several of the studies referenced found that glyphosate residue is toxic to testicle cells and it lowers testosterone synthesis. Other effects found were that some men developed breasts, a variety of birth defects, and some becoming sterile over time.

A Russian study found that hamsters fed GMO soybeans matures slower sexually and in three generations they were no longer able to reproduce.

Another from Denmark found a marked decrease in men's sperm counts. In 1940 there were an average of 100 million sperm cells per milliliter of semen. Today the average is only 60 million and some men's are less than 20 million.

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This following slide courtesy of Arden Anderson, MD

Glyphosate and Feminization

- Roundup is the major pesticide used in agriculture worldwide; it is a glyphosate-based herbicide. Its molecular effects are studied following an acute exposure (0.5%) of fifteen 60-day-old male rats during an 8-day period. Endocrine (aromatase, estrogen and androgen receptors, Gper1 in testicular and sperm mRNAs) and testicular functions (organ weights, sperm parameters and expression of the blood–testis barrier markers) were monitored at days 68, 87, and 122 after treatment, spermiogenesis and spermatogenesis. The major disruption is an increase of aromatase mRNA levels at least by 50% in treated rats at all times, as well as the aromatase protein. We have also shown a similar increase of Gper1 expression at day 122 and a light modification of BTB markers. A rise of abnormal sperm morphology and a decrease of the expression of protamine 1 and histone 1 testicular in epididymal sperm are observed despite a normal sperm concentration and motility.
- Estelle Cassault-Meyer, Steeve Gress, Gilles-Éric, Isabelle Galeraud-Denis. "An acute exposure to glyphosate-based herbicide alters aromatase levels in testis and sperm nuclear quality" *Environmental Toxicology and Pharmacology*. Volume 38, Issue 1, July 2014, Pages 131–140
- **Meaning: an increase in aromatase would mean an increase conversion of testosterone to estrogen in men, which can lead to "man boobs", ED, muscle mass loss, feminization, mood swings, weight gain, etc.**

A study in the Journal of Environmental & Analytical Toxicology, September 2013 found that 100% of all dairy cows tested had some level and of glyphosate in their system and had varying degrees of organ damage (livers, kidneys, muscle cells). Blood serum levels also indicated a deficiency several critical nutrients. So how does this affect humans? We eat the meat and drink the milk that cows produce so let's take a look at how the GMO corn fed to cows is affecting them (or grass treated with Round-Up).

The following slide courtesy of Dr. Don Huber, Purdue University

Nutrient Density of GMO & Non-GMO Corn, Iowa, 2012

Nutrient	GMO	Non-GMO	Nutrient	GMO	Non-GMO
Glyphosate	13	0	Mn	2	14
Formaldehyde	200	0	Fe	2	14
Test Wt.	57.5	61.5	Zn	2.3	14.3
N	7	46	Cu	2.6	16
P	3	44	Co	0.2	1.5
K	7	113	Mo	0.2	1.5
Ca	14	6130	B	0.2	1.5
Mg	2	113	Se	0.6	0.3
S	3	42	Cl	10	1

First, we notice there is a lot less nutrition in the GMO corn than regular corn. Next notice that the carcinogenic chemical Formaldehyde is being produced in the GMO corn!

The chart below illustrates current medical guidelines for Formaldehyde in other products we encounter, many times less than the 200-ppm found in GMO corn. On any other product with this level of toxicity it could not be sold.

The following slide courtesy of Dr. Don Huber, Purdue University

Medical Management Guidelines, Formaldehyde

- **Concentration in GMO corn (Iowa) = 200 ppm**
- **Formaldehyde is highly toxic to all animals and absorbed well by the GI tract**
 - **It is carcinogenic, toxic, and allergenic**
 - **Contributes to reproductive problems**
 - Drops sperm counts in men
 - Causes spontaneous abortion (miscarriage)
- **EPA limit in air of new buildings = 0.016 ppm**
- **Maximum conc. in workplace = 0.3 ppm**
- **Maximum emis. from wood products = 0.09 ppm**
- **Symptoms at (0.5 - 3 ppm). Respiratory damage,**
 - **Chronic fatigue, irritation, GI tract injury, cancer,**
 - **Central nervous system, metabolic disruption, rash,**
 - **Suppressed immune system, vomiting, genotoxic,**
 - **Abdominal pain, ulceration, dizziness, death**

The following slide courtesy of Dr. Don Huber, Purdue University

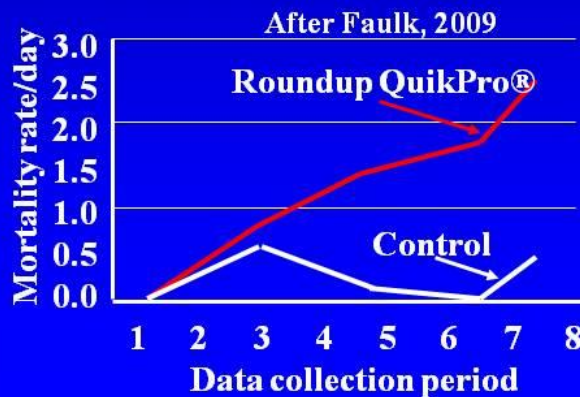


When insects like bees gather pollen and nectar from these weeds that are treated with Round-Up they become weakened and eventually die. The combined effects of several agents are known as Colony Collapse Disorder. Bees are crucial to much of our food supply as shown in the slide below.

The following slide courtesy of Dr. Don Huber, Purdue University

Environmental Impact of Glyphosate Bee Colony Collapse Disorder

- Lower mineral availability in plant products
Malnutrition
- Biocidal to *Lactobacillus/Bifidobacterium* in 'stomach'
Starvation, immunity
- Direct toxicity - endocrine disruption, neurotoxicity
Reproduction, disorientation





When bees forage on Round-Up treated fields there is a large increase in bee deaths.



The following slide courtesy of Dr. Don Huber, Purdue University

Importance of the Honeybee

- Pollinator for plant reproduction
 - One-third of agricultural production
 - Ecologically important
- Honey
 - Nutrient source
 - 'Sugars'
 - Minerals
 - Probiotic source (10^8 /gm honey)
 - *Lactobacillus* spp.
 - *Bifidobacteria* spp.

Staphylococcus aureus (MRSA)
Pseudomonas aeruginosa
Enterococcus (VRE)

BEFORE & AFTER PHOTOS: WHOLE FOODS MARKET - GIVE BEES A CHANCE CAMPAIGN

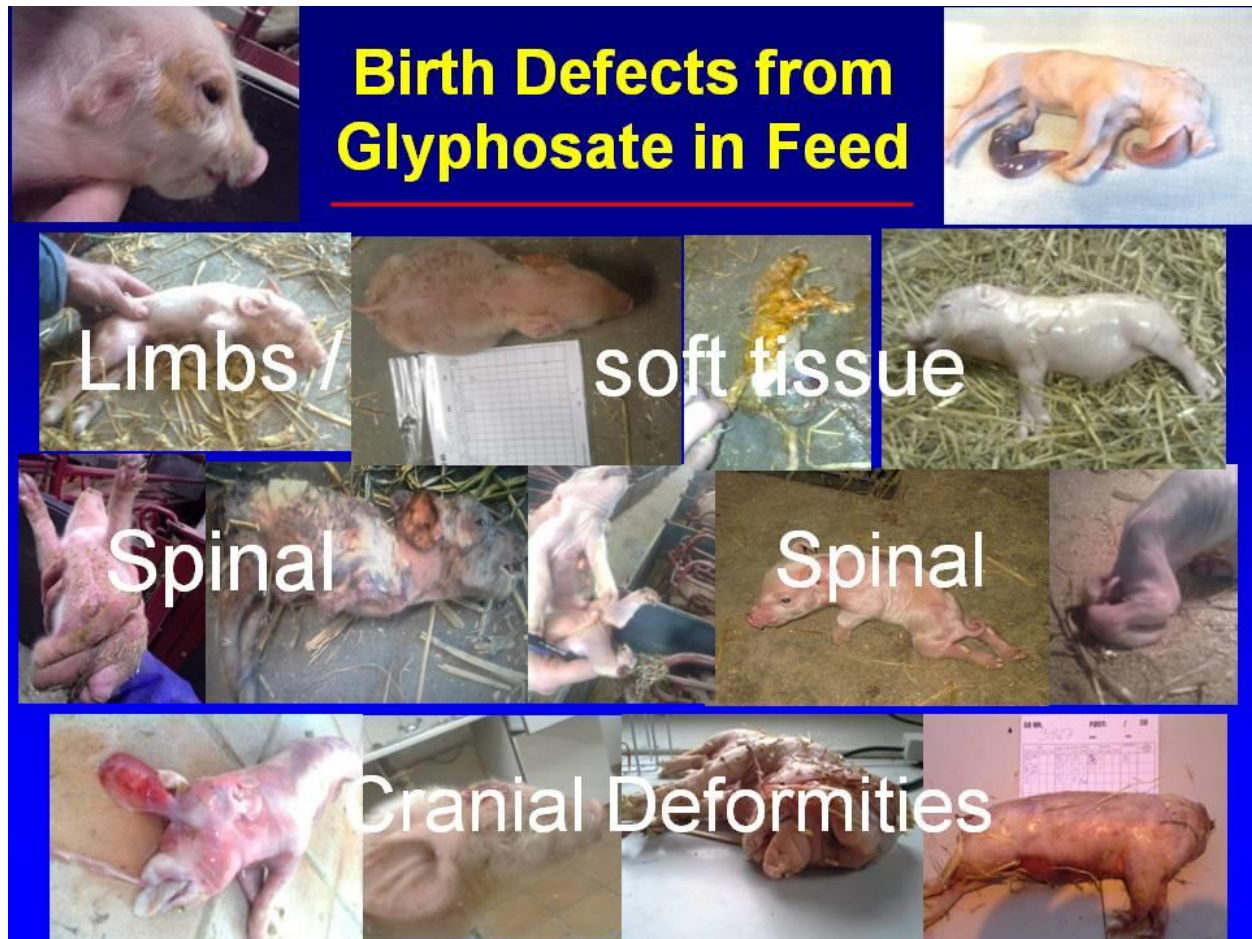
We have seen how Round-Up applied to fields is affecting our bees. Below is a slide that shows what happens to animals whom are fed GMO grains treated with Round-Up (glyphosate).

The following slide courtesy of Dr. Don Huber, Purdue University

Food and Feed Safety Concerns

- **Nutrient deficiency**
 - Co, Cu, Fe, Mg, Mn, Zn
- **Increased levels of toxic products**
 - Mycotoxins [Fusarium toxins (DON, NIV, ZEA), aflatoxins]
 - Allergenic proteins and metabolic toxins
- **Premature ageing, reproductive failure**
- **Ecological disruption**
 - bees, amphibians, plant diversity, etc.
- **Gene flow** - weeds, soil microbes, intestinal microbes
- **Direct toxicity of glyphosate**
 - Cell death, immune failure, disease resistance
 - Endocrine system, infertility, birth defects, teratogenicity

The following slide courtesy of Dr. Don Huber, Purdue University



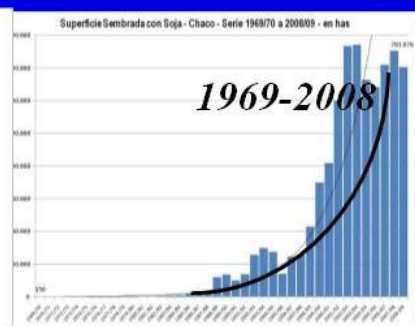
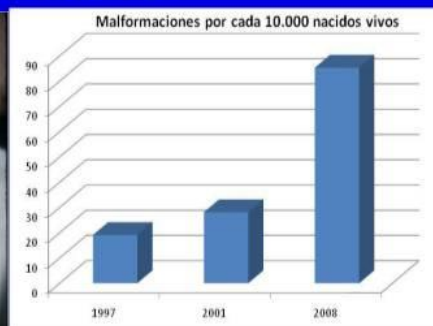
What is happening to our children? They eat GMO products daily in their cereal, bread, tortilla chips, etc. Without labeling we have no way to protect our families without purchasing organic certified foods.

The slide below from Argentina shows what happens to mothers of children exposed to glyphosate from wind drift.

The following slide courtesy of Dr. Don Huber, Purdue University

Birth Defects Based on RR Soybean Acreage & Glyphosate drift -Cordoba, Argentina area

- **447 % increase in birth defects - (1998-2008)**
 - Heart - Anaphlactoid purpura
 - Musculoskeletal - Thyroid
- **Increased miscarriages & other reproductive failures**
- **Cancers in children- and adults, Liver diseases increased**
- **Neurological disorders increased - esp. in children**
- **Acute allergies increased**



All of our government agencies have ignored their own scientists to the safety of glyphosate that is used in products like Round-Up and the extreme dangers of GMO's (genetically modified food).

More and more research illustrating the dangers of these products is appearing steadily. The administrators of the USDA, EPA, FDA appointed by various White House administrations over the last couple decades have all said that GMO's are safe. They will



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say a person can eat a meal of GMO foods and nothing happens therefore they are safe. They said the same thing about cigarettes, one could smoke a cigarette and nothing happened. The result was that worldwide, hundreds of millions of people died needlessly from smoking. The effects of toxic agricultural chemicals are cumulative and steadily build up in our bodies over time.

Scientifically Irresponsible

- * **Untested end products (toxicology) – New proteins, Bt toxin**
- * **Irreversible consequences**
 1. **Gene contamination**
 2. **Health damage**
- * **Basic infrastructure attacked – food production**
- * **Unintended consequences ignored – increased disease**
- * **Increased toxic chemical exposure – food, environment**
- * **Decreased production efficiency – food/feed**
- * **Unknown end points – unregulated gene flow**



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To paraphrase a few verses from the Book of Proverbs; "If we do not obtain knowledge about a subject, then we will make bad decisions and will suffer the consequences".

For those that would like to learn more there are many lectures on You Tube. A good one is: <https://www.youtube.com/watch?v=yiU3Ndi6itk>

Another good documentary is; "**Genetic Roulette**" that is available on DVD and a good way for garden clubs to become more familiar with these issues.

Another documentary on DVD is, "**The World According to Monsanto**" – How a corporate giant is behind many of our health problems.

Another documentary on DVD is, "**GMO - OMG - Is this the end of REAL FOOD?**"

An easy-to-read book, "The MYTH of SAFE PESTICIDES", by Andre Leu, Acres USA, 2014, ISBN: 978-1-60173-084-8 has a lot of information on the dangers of Round-Up and other gardening chemicals.

One can clearly see why more and more gardeners are switching to the modern methods of gardening, based on sustainability and biology, that we call "Organic Gardening".

A lot of the information and many of the slides came from the Advanced Soil Science Conference I attended last year. A special thanks to:

Don Huber, Ph.D. - Professor emeritus Purdue University: world renowned plant pathologist

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Robert Kremer, Ph.D. - now retired professor/researcher in soil microbiology at the USDA/ARS

Michael McNeil, Ph.D. - former USDA researcher, professional agronomist and mycologist

Arden Anderson, D.O., Ph.D. - physician and agricultural nutritionist, expert in the connection between human health and soil/crop nutrition

Jerry Hatfield, Ph.D. - former head of the USDA Soil Tilth Lab research center

ROUND-UP - UPDATE 1

Since the announcement a few months ago that Round-Up (Glyphosate) is a carcinogen by the World Health Organization there has been a steady stream of reports and research articles being released. It is almost like many researchers were afraid to say anything or publish their results before.

Adding to the growing list of warnings is California's Environmental Agency which has listed glyphosate as carcinogenic and added to its list of chemicals known to cause cancer, birth defects and other reproductive harm.

Pollution from Round-Up is so severe that a study from Mississippi's delta region found glyphosate in 75% of all air and water samples over a 12 year period.

Glyphosate contamination is systemic in that it is in every cell of the plant from the roots to the growing tip. Unlike some pesticides, one cannot wash off glyphosate before cooking or eating hence this toxic chemical ends up in our bodies. Crops that have been genetically engineered (GMO) to withstand much higher concentrations of glyphosate

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have much higher levels of this toxic chemical in their cells. As we discussed previously, the glyphosate ties up nutrients, hence it alters the nutritional content of the crop, disrupts the biosynthesis of aromatic amino acids (these are the ones the body cannot make and must come from our food), the tie-up of sulfur impairs the sulfate transport and sulfur metabolism required for so many of our metabolic processes that are required for us to be healthy.

Another side effect of eating foods that have been treated with Round-Up is that there is a large disruption of the microbial function throughout our bodies, reducing the beneficial microbes in particular resulting in an increase of pathogens (over growth). This also leads to digestive disorders like heartburn, leaky gut and gluten intolerance. Glyphosate also shuts down many enzymes that detoxify the body, hence enhancing the damaging effects of food borne chemical residues and environmental toxins. As the microbes break the glyphosate down in our stomach and guts ammonia is created which leads to inflammation in our brains that is associated with autism and Alzheimer's disease.

Note: Only 1 ppm of glyphosate kills good bacteria and destroys the Microbiome we need for good health. There is a YouTube video on this subject titled "Engineered Food and Your Health: The Nutritional Status of GMO's".

Another research article in the Journal of Agricultural Sciences found that in genetically engineered soy beans (over 94% of all soy sold in the USA), the genetic modification disrupts the plants natural ability to control stress and allows the production of formaldehyde (a known carcinogen) in the bean. Additionally they found a large reduction in the anti-oxidant glutathione required for cellular detoxification. Note: GMO soy is now found in most baby food products unless they are certified organic.

One study on goats that were fed GMO soy, the researchers found that the DNA in the goats was altered and the milk produced was of lower quality which affected the

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offspring. One of the findings was that the colostrum that transfers immunity to the baby contained DNA fragments that are not supposed to be there (not normally found in goat milk). The immunoglobulin concentration was lowered and the colostrum had significantly reduced levels of proteins and fat. The baby goats had altered physical traits including height differences in their chest and withers (a polite way of saying they had birth defects).

Another source of GMO contamination in our food supply is from sugar. At least 95% of all sugar beets grown in the USA are now genetically modified and 50% of our "sugar" or "sucrose" is from beet sugar. The only way to protect your family is to use certified organic sugar or labeled 100% cane sugar.

Pet health problems have exploded in recent years from tumors to cancer. The newsletter "Take Part" recently had a headline "Is Your Pet Eating GMO's". Unless your pet food is labeled GMO free or organic, there is a very high chance that your pet food is contaminated with GMO products.

Several readers have sent in links to articles about GMO's. Recent articles in the New England Journal of Medicine (August 20, 2015) and the Journal of the American Medical Society have had articles questioning the safety of GMO foods and the health problems they are causing.

A new report I was reading this morning has found another toxicological problem that had never been investigated before. Round-Up and its active chemical glyphosate actually makes other toxins and heavy metals more damaging to the body than they would normally be! The result was impaired kidney function and kidney disease. The original report was published in the Journal BMC Nephrology and has been confirmed by researchers at multiple universities including MIT.

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Due to the immense amount of research data being released on the dangers and health problems caused by GMO crops many countries are now banning the planting of these crops. A few include Russia, France, Hungary, Scotland, Austria, Latvia, Switzerland, Greece, Bulgaria, Ireland, New Zealand, and many more (26 total by one account). Also, several countries have partial bans. For example, Australia has several of its states that have full bans on GMO's. Several counties in the state of California have GMO bans. Additionally, over 64 countries now require labeling of products containing GMO ingredients.

"A recent investigative study has found that one of the leading proponents of GMO food safety (University of Florida's now disgraced agricultural scientist Dr. Kevin Folta) was actually in financial collusion with Monsanto." (www.naturalnews.com)

Another headline, "Monsanto's Round-Up Triggers Over 40 Plant Diseases and Endangers Human and Animal Health". You can read more on the glyphosate issues at [www.naturalnews.com/031138 Monsanto Roundup.html](http://www.naturalnews.com/031138_Monsanto_Roundup.html).

Another interesting article from Natural News (Friday August 28, 2015) is "Farmers are drenching crops with glyphosate for faster harvesting". Round-Up is not being used for weed control but to dry out plants quicker to allow faster harvesting. This creates even higher levels of glyphosate residues on our food.

A recent (and alarming) list of 15 diseases linked to Monsanto's Roundup was compiled by the health organization EcoWatch (You can find the list here:).

<http://ecowatch.com/2015/01/23/health-problems-linked-to-monsanto-roundup/>

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If you want to learn more, below are a few websites that have additional information on the dangers of Round-Up and GMO's:

www.GMO.news

www.GMOevidence.com

www.GMwatch.org

www.naturalnews.com

www.monsanto.news

As one of the newsletters pointed out it is amazing, with more and more Americans learning about the dangers of Round-Up and eating GMO foods, and with the polls showing over 94% of Americans want labeling, how the news giants like NBC, FOX, ABC, CBS, CNN, etc. have ignored this issue in their reporting. In other words, they dance to the tune of their corporate sponsors and do not care about us the viewers.

As I finish writing this article, I just read that the International Agency for Research on Cancer just classified the herbicide known as "2,4-D" as a probable carcinogen. More on this dangerous and toxic herbicide in future articles.

BOOK REVIEW:

[Altered Genes, Twisted Truth](#) - How the Venture to Genetically Engineer Our Food Has Subverted Science, Corrupted Government, and Systematically Deceived the Public,
Steven M. Druker, Clear River Press, 2015, ISBN: 978-0-9856169-0-8

This book is the story of an investigative report on how toxic genetically altered food has been allowed into our food supply. Druker is a public interest attorney and Founder of the

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Alliance for Bio-Integrity. He has been collecting evidence for 15 years to show that GMO's are not safe and should never have been approved by the government.

In 1998, his organization along with a group of life scientists and religious leaders filed a lawsuit on the Department of Health and Human Services challenging the FDA's ruling in 1992 that GMO's were safe, which then allowed them to enter the marketplace. As a result the FDA was forced to turn over 44,000 pages of documents relating to the FDA's GMO food policy.

Their review found that the FDA scientists did not support the safety of GMO's and recommended against their release. The FDA administrators appointed by the various administrations ignored their own scientists and set about an agenda to deceive congress and the American people.

The agency through their power systematically suppressed truth and research, covered up health problems, and consistently lied to the American public. The FDA used their power to get researchers opposing GMO's fired, reputations tarnished and even illegally punished.

Ingredients in GMO foods now are in more than 80% of all foods in the USA. As we saw in the previous articles on Round-Up and GMO's they have failed miserably and are causing tremendous health problems. They have lower yields, cost more, have more problems, have far lower nutrition, and cause many health and environmental problems.

From the book's cover: "One of the most important books of the last 50 years" - Jane Goodall

This book is for anyone concerned about the health and safety of their families.

EXECUTIVE SUMMARY

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NOTE: All these points are solidly documented within the book. They will form the first part of the Executive Summary. The second part (which is not yet completed) will provide a chapter-by-chapter summary.

Key Points

- Numerous scientists (including those on the US Food and Drug Administration's Biotechnology Task Force) have concluded that the process of creating genetically engineered (GE) foods radically differs from conventional breeding and entails greater risk.
- Consequently, not only has there never been a consensus within the scientific community that GE foods are safe, many eminent experts have issued cautions, as have respected scientific organizations like the Royal Society of Canada and the Public Health Association of Australia.
- In contrast to the experts who counsel caution, many of the scientists and scientific institutions that promote GE foods have systematically suppressed evidence and distorted the truth in order to advance them.
- In fact, the GE food venture has been chronically and crucially reliant on such deceptions and could not have survived without them.
- For instance, GE foods first achieved commercialization only because the US Food and Drug Administration covered up the extensive warnings of its own scientists about their abnormal risks, lied about the facts, and deliberately violated federal food safety law by allowing them onto the market without having been proven safe through standard testing.
- Yet, the FDA and other GE proponents have created so much confusion that although US food safety law in regard to GE foods is much stricter than EU law, most people are under the illusion it's weaker – and don't realize that these inadequately tested foods

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have entered the American market, not due to the law's failings, but to the FDA's failure to obey it.

- Moreover, not only did GE foods gain entry to the market through a major fraud, their continued marketing has depended upon its continuation – and its augmentation by a stream of misleading statements from scientists and scientific institutions that have likewise abused their positions of authority.
- Through this disinformation, the manifold problems caused by GE foods have been obfuscated; and if they had instead been openly and accurately reported, the agricultural bioengineering enterprise would have collapsed.
- For example, most people are unaware that, contrary to the claims of biotech advocates, humans have indeed been harmed by consuming the output of genetic engineering – and that the technology's first ingestible product (a food supplement of the essential amino acid L-tryptophan) induced an epidemic that killed dozens of people and seriously sickened thousands, permanently disabling many of them. Moreover, the evidence points to the genetic alteration as the most likely cause of the unusual contamination that rendered the supplement toxic.
- Nor is it widely known that numerous laboratory animals have also suffered from eating products of genetic engineering and that well-conducted tests with GE crops have yielded many troubling results, including intestinal abnormalities, liver disturbances, and impaired immune systems.
- Additionally, besides being unsound from the perspective of biological science, the GE food venture is unsound (and outright reckless) when examined in light of computer science; and compared to the careful manner in which software engineers revise life-critical information systems, the radical way in which biotechnicians alter complex cellular information systems is not really “bioengineering” but biohacking.

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- Thus, contrary to the assertions of its proponents, the massive enterprise to reconfigure the genetic core of the world's food supply is not based on sound science but on the systematic subversion of science – and would implode if subjected to an open airing of the facts.

ROUND-UP - UPDATE 2

Since the announcement a few months ago that Round-Up (Glyphosate) is a carcinogen by the World Health Organization there has been a steady stream of reports and research articles being released. It is almost like many researchers were afraid to say anything or publish their results before.

Recently there was an article in Dr. Mercola's health newsletter on GMO's and glyphosate (Round-Up). Most of what was said has already been covered in previous articles. However, they were a few new points of interest.

Many soil pathogens are stimulated by glyphosate. In the genus *Fusarium* there are good and bad species. A study on GMO soybeans found that the roots only stimulated the bad species.

Another study revealed that a soil test may show sufficient manganese (Mn) however a tissue analysis reveals that it is not absorbed into the plant. The microbe agrobacterium is stimulated by glyphosate. This microbe is what is called a manganese oxidizer as they will tie-up manganese and prevent the plant from absorbing it.

Round-Up destroys the microbiome in the soil similarly to how an antibiotic kills the microbiome in our gut. It decreases the soils ability to nourish a plant and resist pests.

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Also over 60 million acres of farmland is over run with glyphosate resistant super weeds. Some of these super weeds are now resistant to over 5 different herbicides. [Note: Organic and biological soil scientists have been predicting this for years and have been ignored by the USDA and EPA.]

As you would expect, many nutrients, especially the micronutrient levels, have also decreased in our food and the health problems in society continue to increase.

From the newsletter:

"It has also been found that glyphosate disrupts every enzymatic DNA and RNA function by chelating the most essential minerals that we need for those functions. Glyphosate cuts off and effects the bioavailability of all B-Vitamins and the protein conversion amino acid Tryptophan, which then effects Serotonin and Melatonin synthesis, thereby resulting in a cascade of neurological dysfunctions, diseases, and cancers. No wonder doctors do not complain, they are raking in the \$\$\$."

Today in the Health Freedom Alliance e-newsletter the headline was "85% of Tampons contain Monsanto's Cancer Causing Glyphosate." Researchers at the University of La Plata in Argentina found that 85% of all cotton hygiene products tested positive for glyphosate and 62% tested positive for AMPA (aminomethylphosphonic acid), a derivative of glyphosate. What is worse, 100% of the cotton and sterile cotton gauze tested positive for this carcinogenic chemical (Dr. Damian Merino). All the products tested (gauze, swipes, wipes, female products like tampons and sanitary pads were purchased at local supermarkets.

In 2015 the USDA found that GMO cotton that was designed to withstand much higher levels of glyphosate now accounted for 94% of the nation's acreage!

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Again, the only way one can protect themselves and their families is to purchase organic cotton products.

ROUND-UP - UPDATE 3

A lot has happened over the last few months since my last update. Several more countries have banned GMO crops. The list now includes Venezuela, Italy, Austria, Poland, Wales, Germany, Slovenia, Serbia, Bulgaria, Latvia, France, Cyprus, Lithuania, The Netherlands, Scotland, Northern Ireland, Poland, Germany, Greece, Croatia, Hungary, Slovenia, Taiwan and Italy. While at home the USDA, EPA and the President Obama administration continues to try and ram GMO's down the throats of the American people even appointing former Iowa Governor Tom Vilsack (pro BioTech Governor of the Year) as USDA secretary. In spite of this marketing and manipulation effort, several states and a few counties in other states have banned the planting of GMO crops and are requiring labeling.

Note: The DARK (Deny Americans the Right To Know) act was temporarily defeated in congress. Monsanto and its congressional pawns are now trying to attach it to a financial spending act as a rider.

Round-Up ready crops have been a dismal failure as they were designed to reduce herbicide usage. A 2009 study showed over the previous 13 years that Round-Up usage *increased by 383 million pounds* just the opposite of what was promised. The federal courts ruled that approval of GMO alfalfa violated as it failed to analyze the risks properly. Consumers whom ingest GM alfalfa (or eat the meat from animals fed GM alfalfa) are likely risking their health. Even the USDA admits that "acute toxicity in mice were observed".

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<http://www.huffingtonpost.com/ronnie-cummins/obama-usda-poised-to-take-b-432185.html>

From the Paper: "Monsanto Hid Evidence of Roundup As A Human Carcinogen"

A new paper by Anthony Samsel and Stephanie Seneff shows that Monsanto own studies demonstrated unqualified links to cancer for over 30 years. Entitled "Glyphosate, pathways to modern diseases IV: cancer and related pathologies," the authors use Monsanto's own studies that had been sealed by the EPA. Samsel's "freedom of information requests pried out of the EPA's files, and demonstrates that glyphosate fed to rats produced tumors and cancers throughout the organs and glands of the animals. Similarly, many types of cancers, including thyroid, liver, bladder, pancreatic, kidney and myeloid leukemia have risen in the US population in parallel with their increased exposure to glyphosate in the food supply. The authors cite over 250 studies, that Glyphosate ties up key nutrition elements which shut down metabolic pathways, it is also an antibiotic that kills off beneficial gut bacteria (explains why we have to take probiotics now to stay healthy). It also damages the mitochondria and throws off the delicate balance of the hormonal system. They also demonstrate how the same disruptions are likely contributing to a whole host of other diseases, including autism, diabetes, kidney disease, and fatty liver disease. They also found that very low dose exposure did the greatest damage. Note: As a result Monsanto quit testing for low dose exposure. In addition they found that glyphosate also causes DNA damage. Other findings were glyphosate was associated with an 80% increase in melanoma and that it stimulated the growth of human breast cancer cells.

Since most corn is now GMO we need to quit eating corn chips and salsa unless they are made from GMO free corn. Ask your Mexican restaurant if they serve corn chips from GMO corn and if they do, find another restaurant. I suspect other corn chip products like

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Frito's and Doritos would also be dangerous to our health if they are made with GMO corn (only a label would let us know).

On the positive side Cambell's soups have annouced they will label products that contain GMO's and will try to remove them from their products. Chilpote's Resturants have already stated they will not serve any food made with GMO's.

ROUND-UP - UPDATE 4

The UK based news agency called the Daily Mail published a report from Argentina where the Glyphosate weed killer unleashes grotesque chemical deformations in farm animals... two-headed calves, pigs born with no skin, twisted life forms seem spawned from Hell. They report that the number of mutations has quadrupled as the use of GMO (genetically modified) grains were fed to the animals. There is a summary at:

http://www.naturalnews.com/054129_glyphosate_weed_killer_animal_mutations_genetically_modified_crops.html#ixzz49bbqpJND

A report in the Journal Food and Chemical Toxicology (V. 84, October 2015, pp. 133-153) has found that exposure to glyphosate (Round-Up) can accelerate the growth of human breast cancer cells. GMO foods have much higher levels of glyphosate than conventional food. This another reason to grow one's own vegetables and buy organic whenever one can.

The University Of California San Francisco (UCSF), was the first-ever comprehensive and validated [LC/MS/MS testing project](#) to be carried out across America on glyphosate in humans. **A staggering 93 percent of Americans tested positive for glyphosate,**

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according to the test results, [announced](#) yesterday (May 25, 2016). Worse yet? Children had the highest levels.

ROUND-UP - UPDATE 5

Many of our common health problems are tied to what's happening to our gut. The problem becomes worse as farmers now spray mature wheat with glyphosate (i.e. Round-up, not being used for weed control) since it increases the yield and makes the wheat easier to harvest (used as a desiccant). This complicates our health as glyphosate kills good bacteria. It was patented as an antibiotic in 2001 (US Patent #7,771,736)! Glyphosate has firmly been linked to many health problems as the chart below indicates (anything over 0.9 is an extremely strong correlation). As the amount of glyphosate applied has increased (red line), our health problems have increased.

Note: I once heard the numbers in the chart below explained using this analogy. In the game Russian roulette, using a six-shooter there is one bullet or a 0.166 chance of dying. If one puts five bullets in the gun there is still only a 0.83 chance of dying. If the EPA, USDA or FDA was evaluating the dangers of the gun they would say there is no proof of danger, since one time out of six, it does not kill you.

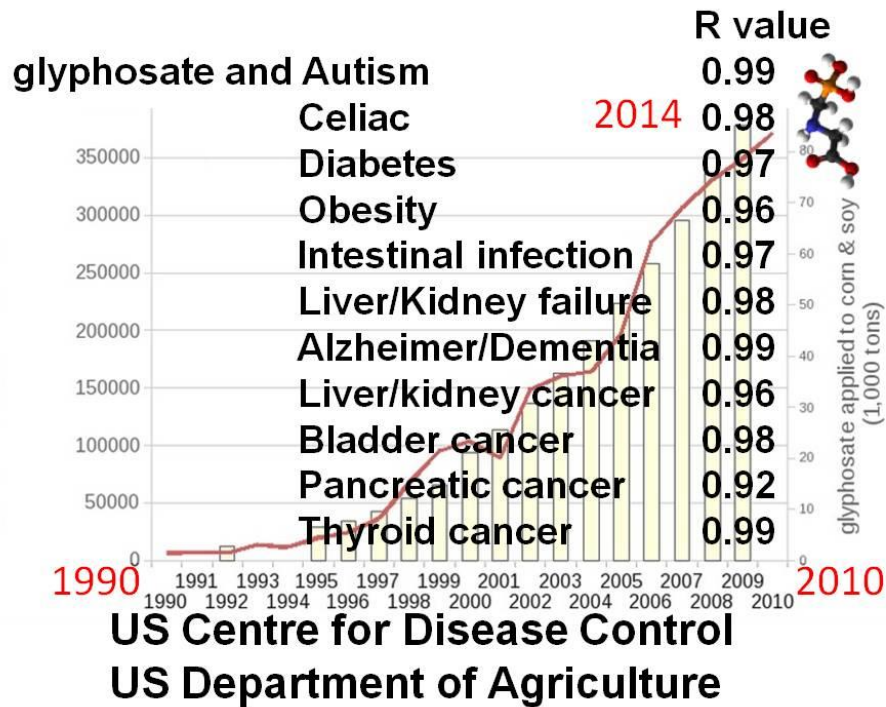


Chart courtesy of Dr. Thierry Vrain from his lecture at Rice University a few months ago sponsored by the Organic Horticulture Benefits Alliance (OHBA).

Many studies have shown that glyphosate accumulates in our tissues over time. Glyphosate was originally patented as a demineralizer to clean pipes (US Patent # 3,160,632). As a result, it ties up the nutrients we need for good health and prevents them from being absorbed by our bodies.

ROUND-UP - UPDATE 6

As more and more information on the dangers posed by the herbicide Round-Up continue to come out, the country of Italy's Ministry of Health has banned the spraying



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of this toxic chemical in all public places. In addition, they have banned the pre-harvest spraying of Round-Up on crops to speed up the drying of grains to make harvesting easier. Their plan is to remove all Round-Up from the shelves at stores around the country. As reported in the Health Freedom Alliance newsletter: A recent and controversial study performed by Professor Gilles-Eric S eralini has pointed out that Roundup is **even more toxic** than previously suggested. Published in the highly-ranked scientific journal *Toxicology*, the professor and his team state:

"... all the glyphosate-based herbicides tested are more toxic than glyphosate alone, and [this study] explains why. Thus, their regulatory assessments and the maximum residue levels authorized in the environment, food, and feed, are erroneous. A drink (such as tap water contaminated by Roundup residues) or a food made with a Roundup tolerant GMO (like a transgenic soya or corn) were already demonstrated as toxic in the recent rat feeding study (2) from Prof. S eralini team. ... These assessments are therefore neither neutral nor independent. They should as a first step make public on the Internet all the data that underpin the commercial release and positive opinions on the use of Roundup and similar products. The industry toxicological data must be legally made public."

Another report stated that the Country of Hungary is in the process of destroying corn crops that were planted with GMO corn. It is illegal in Hungary to grow GMO plants.

Many companies are involved with the cover-up of glyphosate (Round-Up) in our foods. A lawsuit filed (Moms Across America, Beyond Pesticides, and Organic Consumers Association) on Nature Valley Granola bars (General Mills) for falsely labeling the bars as 100% natural when it contains glyphosate, to trick consumers into buying their products. Studies have shown that concentrations as low as 0.1 ppb (parts per billion) can cause damage to the liver and kidneys. The granola bars has almost five times this amount. (Natural News, 8-31-16).

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A study funded by Moms Across America has found the herbicide Round-Up in all 75 air and rain samples tested. They also found Round-Up (glyphosate) in many vaccines with the MMR II vaccine with levels 25 times higher than the others.

From Acres, USA (September 2016) a study from researchers at MIT published in the Journal of Biological Physics and Chemistry has found that glyphosate acts as a pathway for modern diseases. Epidemiological studies have revealed a strong correlation between the increasing incidents in the United States of a large number of chronic diseases and the increased usage of glyphosate on corn, soy, and wheat. Glyphosate substitution for conserved glycines can easily explain the link with diabetes, obesity, asthma, chronic obstructive pulmonary disease, pulmonary edema, adrenal insufficiency, hypothyroidism, Alzheimer's disease, amyotrophic lateral sclerosis, Parkinson's disease, prion diseases, lupus, mitochondrial disease, non-Hodgkin's lymphoma, neural tube defects, infertility, hypertension, glaucoma, osteoporosis, fatty liver disease and kidney failure. The 2015 study by the Detox project found glyphosate in the urine of 93% off all Americans!

Note: GMO's foods have over 10 times the level of glyphosate (think Round-Up) on them. In addition, President Obama signed the DARK act (Deny Americans The Right to Know Act) to prevent labeling of GMO foods even though 94% of Americans wanted labeling.

The dangers of glyphosate (Round-Up) continue to be exposed and is being compared to the pesticide Zyklon B death chemical that was used to kill millions by the Nazis in WWII. A study published in the journal Entropy by P. Coleman, PhD of the Cornucopia Institute has linked glyphosate to the rise in allergies, dementia, gastrointestinal disease, cancer, and a host of other ailments due to the biochemical pathways damaged by exposure to this chemical. They found that low-level exposure builds up over time in our bodies

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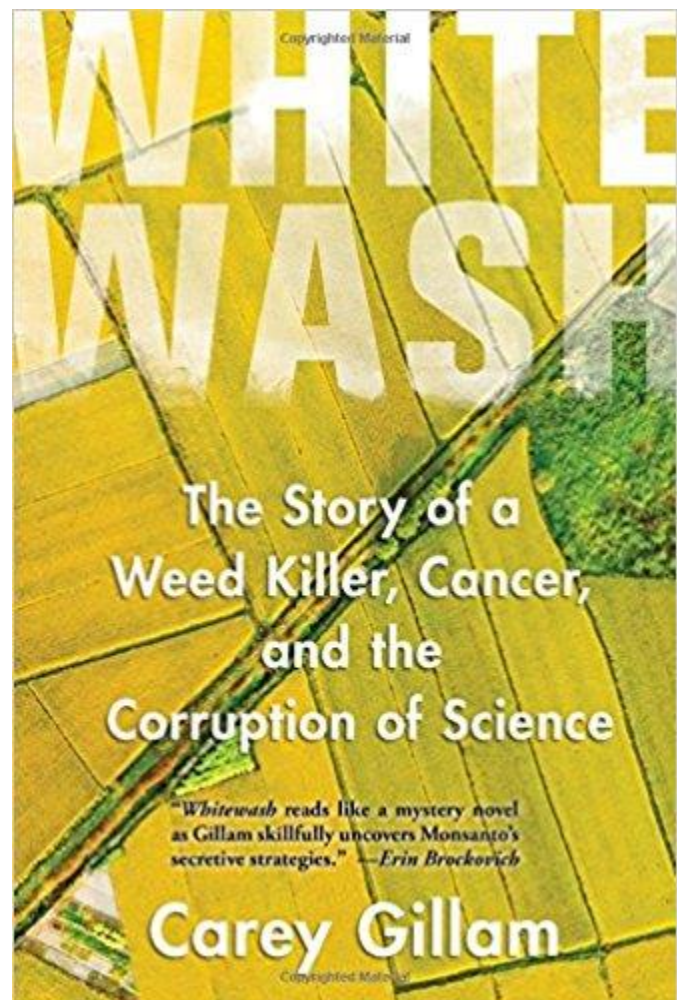
leading to chronic disease. One of the methods it damages our bodies is by obstructing the synthesis of amino acids during digestion, depleting amino acid reserves within the body and damaging the probiotic bacteria in the gut. They also found that glyphosate depletes the body of enzymes it needs to detoxify other harmful poisons, including pesticides and heavy metals. "The available evidence shows that glyphosate may be the most important factor in the development of multiple chronic diseases and conditions that have become prevalent in Westernized societies. The full study can be found on the website: cornucopia.org.

ROUND-UP - UPDATE 7

Book Review: **WHITE WASH - The Story of a Weed Killer, Cancer, and the Corruption of Science**

"**WHITE WASH - The Story of a Weed Killer, Cancer, and the Corruption of Science**", by Carey Gillam, Island Press, 2017, ISBN-13: 978-1610918329

Carey is a veteran journalist, researcher, and writer with more than 25 years' experience covering corporate America, food, and farming. She was a former senior correspondent for Reuter's International news service.





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I am not even sure where to begin, as this book confirms many of the things I have learned over the last couple of decades on corruption in our government from the office of the President through the EPA, FDA, and USDA.

This book is about the politicians, government regulators, corporations, and many so-called scientists that are willing to sacrifice our children and families to many horrible health problems including cancer just so they can line their pockets with money. They worship the God of materialism or "mammon" and do not care who is hurt in the process.

This book is more like a mystery novel as Carey Gillam brilliantly uncovers the deception put on the people of the world by companies like Monsanto and the herbicide glyphosate. White Wash is a powerful expose that exposes the dangers of a very toxic chemical that is invisible and yet profoundly damages our bodies and the environment. This book is extremely well researched and documented. Carey's testimony to the European Parliament, lead them (unanimously) to recommend the ban of glyphosate products (Round-Up) in all of Europe.

As one of the testimonials on the cover stated, "This is a must read for anyone who wants the truth about what you may be putting in your body".

Note: Carey Gillam will be speaking in Houston in May 2018 at an OHBA (Organic Horticulture Benefits Alliance) educational event.

ROUND-UP - UPDATE 8

A paper in the journal Veterinary and Animal Science (June 2020) has found more evidence on the toxicity of glyphosate used in the herbicide Round-Up. To quote from their conclusion: "Based on the literature reviewed in this paper, some ingredients of

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GBHs (glyphosate-based herbicides), both active and inert, appear to act as reproductive toxicants, having a wide range of effects on both male and female reproductive systems, including endocrine disruption, tissue damage, and dysfunction of gametogenesis.”

The journal Environmental Pollution (January 2020) where the researchers found that over 11% of infants and young children had glyphosate in their urine! For infants it rose to 30% of them.

Dozens of health problems have been linked to this dangerous and toxic chemical. Many researchers now believe this chemical is linked to chronic kidney disease. They also believe glyphosate helps transport arsenic and cadmium (both very toxic heavy metals) into the kidneys.

ROUND-UP - UPDATE 9

The Health Research Institute (August 2020) published in the journal Environmental Research has found that switching to an organic diet for just a few days could cut the levels of this pesticide in our bodies by 70%!

ROUND-UP - UPDATE 10

In visiting with customers, I am often amazed at how many want to get cancer or be ill with Covid or suffer other health problems. Of course, this is not what they say but something to the effect “I used Round Up and now I am having weed or disease problems or I do not feel good or why did this happen to my family, etc.”

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After the World Health Organization and the State of California, declared Round-Up a carcinogen, researchers are no longer afraid of being sued by Monsanto and the flood gates have opened.

It also demonstrates how we have been blatantly lied to by our government regulatory agencies and our agricultural universities.

Over the last few years numerous studies are being released on the chemical glyphosate used in herbicides like Round Up. According to the NCAP the use of glyphosate-based herbicides increased over 100-fold in the last couple decades which also correlates with the introduction of genetic engineered crops.

A study published in the journal Chemosphere (2020) has found that glyphosate is an endocrine disruptor and can alter hormones in our body. Exposure to this dangerous chemical, impacts reproductive organs and interferes with brain and immune system function.

It was also found that glyphosate damages 80-90% of the microbes in our guts as it targets an enzyme called EPSPS in the shikimate pathway. This enzyme is crucial for the microbes in our gut to synthesizing three essential amino acids our bodies require.

Last year (2020), the EPA released a preliminary report that found that glyphosate was likely to injure or kill 93% of our endangered species (1,676 total species). They also found that this chemical modifies the crucial habitat of another 759 species.

A report in the Journal of Hazardous Materials (2020) found that glyphosate disrupted the human gut microbiome, weakening the immune system and making one more susceptible to disease.

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We saw this confirmed last year as it was found that those whom consumed fast food or other processed foods were many times more susceptible to being ill or dying from Covid, as these have the largest amounts of glyphosate in them.

A study by the University of California found that Americans with glyphosate in their bodies rose from 12% in 1972 to 70% by 2014 and it is much higher today.

A study in the journal Epigenetics (2020) has found that exposure to glyphosate damages sperm and has multi-generational effects (prostate and kidney diseases, obesity and susceptibility to multiple diseases at one time).

In rodent studies these changes were passed to the third and fourth generations after exposure. It reminded me of the verse in Exodus about sins of the father being passed down to the third generation.

A study published in the journal Scientific Reports (2020) also found that glyphosate causes transgenerational damage that can be inherited.

The University of Birmingham in the UK (2020) has found the glyphosate levels deemed safe by regulatory agencies caused embryonic development failure, significant DNA damage, and interfered with an animal's metabolism and gut function. The study was on water fleas (*Daphnia*) as they are a keystone species at the heart of aquatic food webs.

The journal Science of the Total Environment (2020) published a study that found that cow manure and poultry manure were high in glyphosate and when the manure was used as a fertilizer it suppressed the growth of plants. They also found that in

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suppressed beneficial fungi in the soil. Note: Poultry manure also prevents plants from forming mycorrhizal associations with the beneficial fungi.

The journal of Applied Ecology (2021) published a study that found the other supposedly inert toxic chemicals in herbicides like Round Up are more damaging to bees than glyphosate itself. They found up to 96% mortality on bumble bees. The surfactants used were found to be associated with bee death.

A paper published in the journal Environmental Health Perspectives (May 2021) by researchers at the University of Michigan found that pre-natal exposure to glyphosate and its breakdown product AMPA (aminomethylphosphonic acid) was correlated with increased risk of pre-term births. By testing the urine of women, they found the higher levels of glyphosate were correlated with reduced gestation age at birth. According to the WHO (World Health Organization), pre-term births have increased all over the world for the last 20 years.

The journal Environmental Pollution (2021) published a study by a group of U.S. and international scientists that have found that glyphosate “hacks the hormones of baby girls”. This another example of disruption of the endocrine and reproductive systems.

Higher exposure to glyphosate was associated with a longer (more male typical) anogenital distance in girls exposed while still in the womb.

This study confirms what was previously discovered in animal studies. “The animal studies were also associated with androgen-like effects, including a statistically

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significant increase of anogenital distance in males and females, delay of first estrous and increased testosterone in females”.

A new study by the John Hopkins Bloomberg School of Public Health has found that glyphosate can weaken the immune system of insects as glyphosate inhibits the production of melanin. Melanin is used in humans as a light absorbing pigment that protects the skin. In insects it is used to trap and kill invading bacterium, fungi or parasites.

As a result, mosquitos became more susceptible to infection by the malaria parasite (as they could not prevent it from infecting them), which then helps the mosquitos spread the disease. Additionally, they found it alters the gut microbiome of the insects. Journal PLoS Biology (May 2021).

A study in the journal Frontiers in Plant Science (June 2021) found that glyphosate-based herbicides caused male sterility in horticulturally relevant plants by reducing pollen viability. This is believed to one of the factors causing the decline of native pollinating insects from bees to butterflies.

The University of York in the UK along with scientists from China discovered that exposure to glyphosate (along with the herbicides glufosinate and dicamba) increased the prevalence of antibiotic resistant bacteria in the soil.

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The mutations caused by exposure to the herbicides increased the abundance of bacteria species that carried antibiotic resistant genes which were favored at levels of herbicide that were not lethal to the bacteria.

This study (2021) suggests that the use of herbicides is another factor driving antibiotic resistance in medical use.

Similarly, a study by Kings College London (2021) found that glyphosate-based herbicides activate mechanisms involved in cancer development, including DNA damage, at doses assumed by regulators to have no adverse effects.

The animals also suffered gut microbiome disturbances and oxidative stress, with indications that the liver was damaged. They found a significant increase in fatty liver disease and liver cell death.

They found that “glyphosate altered the expression of 96 different genes in the liver specifically linked to DNA damage and oxidative stress, as well as disruption of circadian rhythm. The same genes were similarly altered in the kidneys.”

They found that Round Up was far more damaging than glyphosate alone! This proves the regulatory policy of only testing the declared active ingredient is not valid.

The journal Communications Biology (2021) had a paper from several research organizations both domestic and international that found that glyphosate inhibits symbiotic bacteria in beetles.



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Glyphosate inhibits bacteria in the beetle guts, that produce building blocks like amino acids that the beetles require. In particular it prevented bacteria from producing the amino acid tyrosine required to produce the beetle's exoskeleton.

As more and more research is showing that the massive insect decline and collapse of food webs is associated with the use of glyphosate. Glyphosate is a major threat to our ecosystems and our health.

Several studies have linked glyphosate exposure to many human health problems, especially Covid-19. Dr. Merola in his newsletters has pointed out many of the reasons. For example, our bodies substitute glyphosate for the amino acid glycine which then poisons our bodies mechanism for making proteins.

He mentions that eating sulfur rich foods like broccoli or brussels sprouts and eating grass fed butter and meats, animal fats, and drinking clean water will help the body purge itself of this toxic chemical.

Our immune system requires certain elements (magnesium, zinc, etc.) to fight off viruses like Covid. Numerous studies have found that over 90% of Americans are deficient in magnesium.

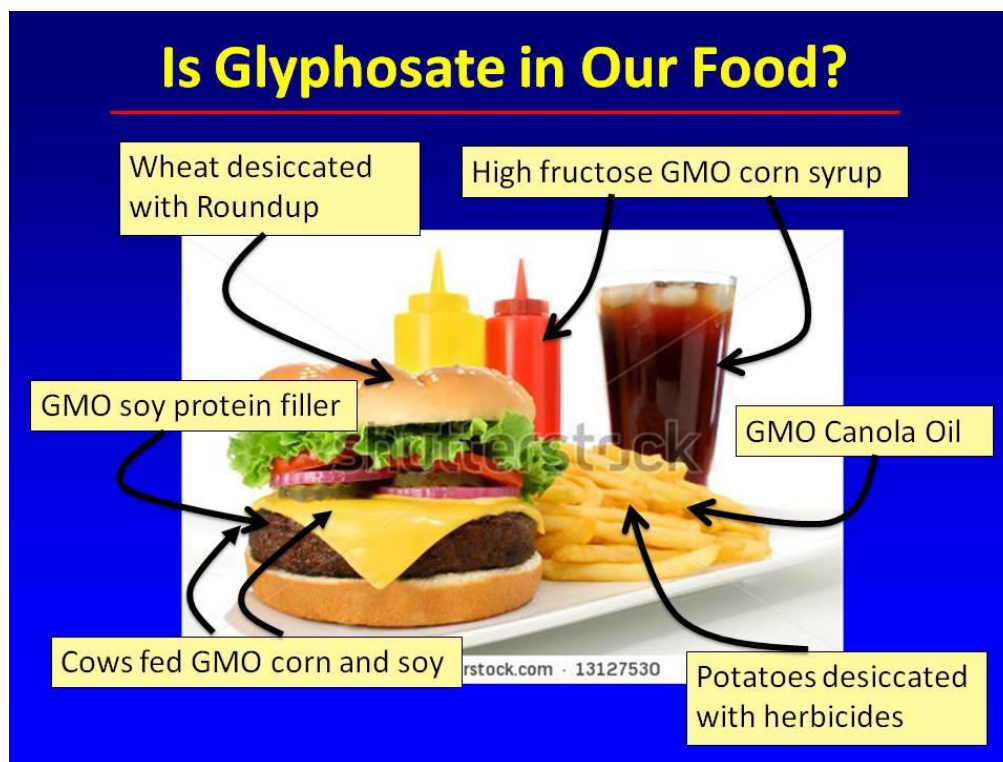
Glyphosate was originally patented as a demineralizer to clean pipes (US Patent # 3,160,632). As a result, it ties up the nutrients we need for good health and prevents them from being absorbed by our bodies from the food we eat (assuming if the elements were there in the first place). This prevents our immune system from working correctly and protecting us against viruses like Covid.

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It also kills good bacteria directly as it was also patented as an antibiotic in 2001 (US Patent #7,771,736) despite what Monsanto advertising claims.

Monsanto's claim that glyphosate only targets one enzyme is also false as it was originally patented in 1964 as an enzyme disrupter. Additionally, many metals are co-factors for many enzymes and cannot work without them. Hence the chelating properties of glyphosate locks up these metals and prevent the enzymes from working.

Glyphosate is used to dry cereal grains like wheat, oats and rye as well as used on soy, corn, and most other food crops. Our food supply is contaminated by this toxic chemical. The chart below gives an excellent example. Almost all processed food stuff is contaminated with glyphosate.





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A recent USGS (United States Geological Survey) found glyphosates in 75% of rain samples and in 50% of all surface water and soil samples.

The best way to protect one's families is to grow your own food organically. Second best is to buy organic and preferable from a local farmers market.

To date over 40 countries have banned or restricted glyphosate usage. In December 2020, Mexico announced that it was phasing out the use of glyphosate and genetically engineered corn to protect human health and the environment.

Do you ever wonder why one does not hear about this in the news? The media today is more concerned about protecting their profits from advertising dollars from companies like Monsanto, rather than telling the truth and being the watch dog that protects people.

On a positive closing note, there is a very good new documentary on saving the planet that is full of hope. All it takes is for each of us to get involved.

"The Need To Grow – Save the soil save the planet"

<https://grow.foodrevolution.org/>