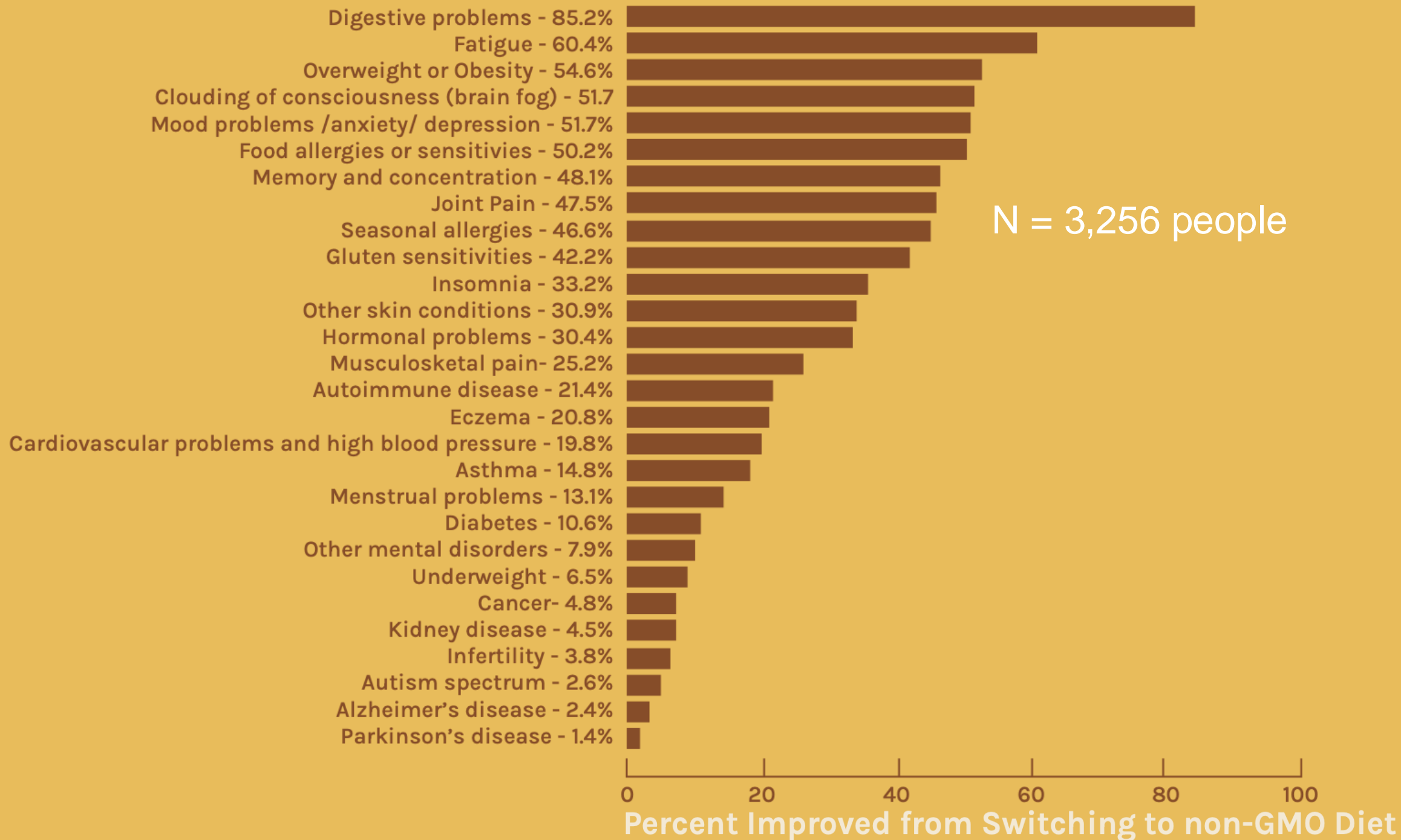




Jeffrey M. Smith  
Founder of the  
Institute for Responsible  
Technology

# Are GMOs and Roundup causing your disease?

Eat organic!



Are Your Digestive  
Problems  
Caused by GMOs  
and Roundup?

bowel dysfunction (constipation, diarrhea),

GERD, bloating

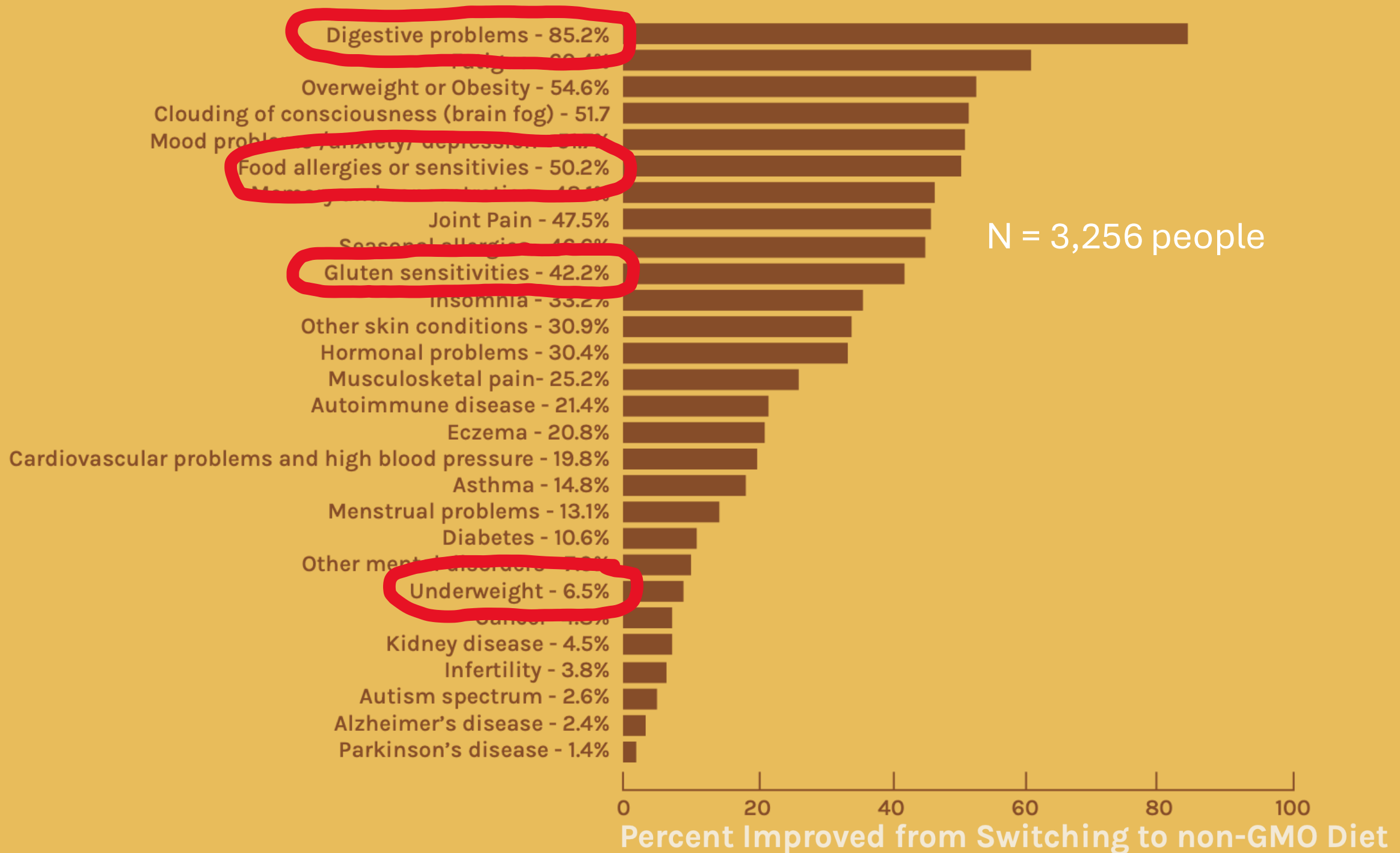
food allergies/sensitivities

IBS, IBD, SIBO, GERD

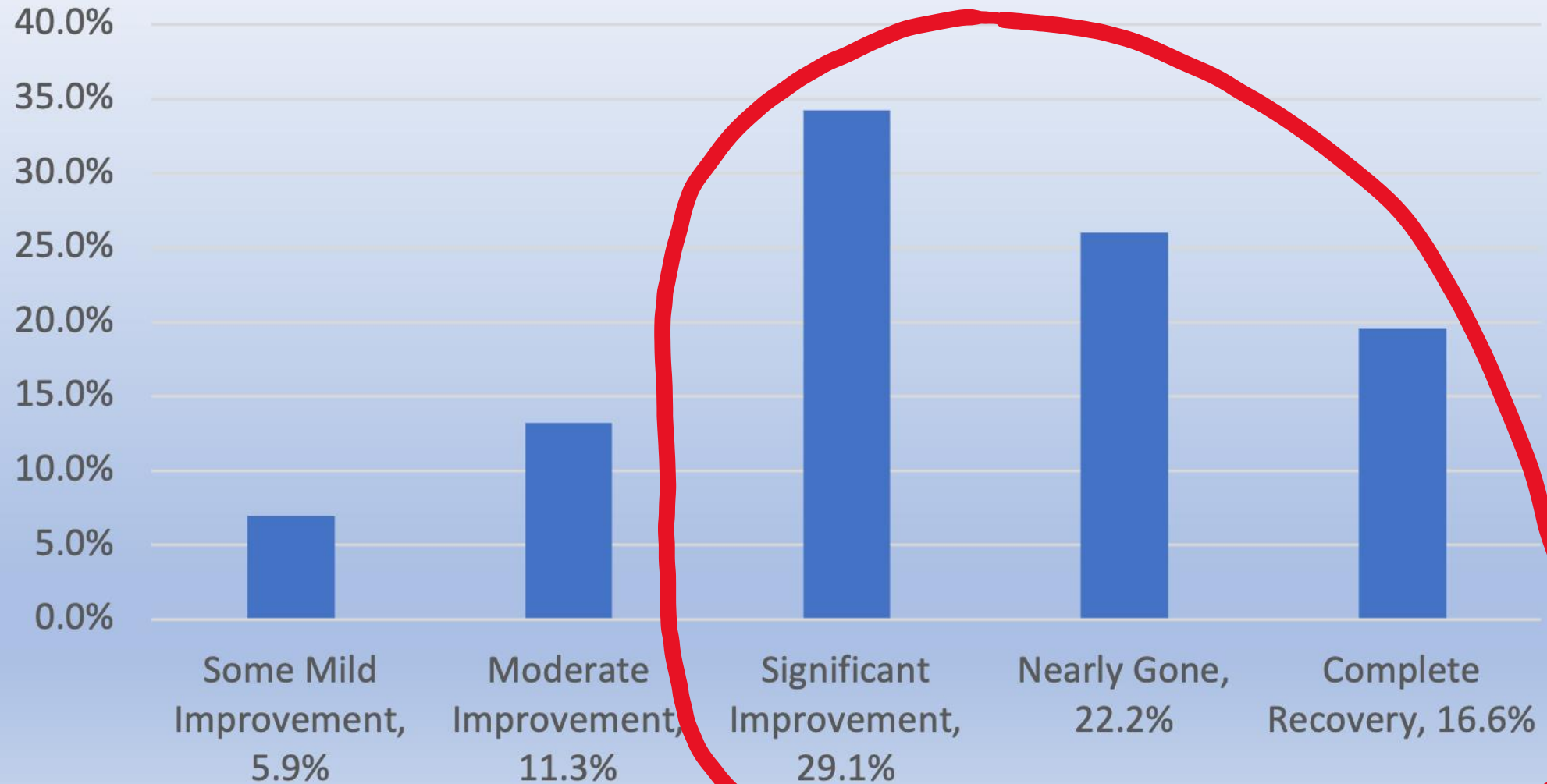
Intestinal infection

Peritonitis

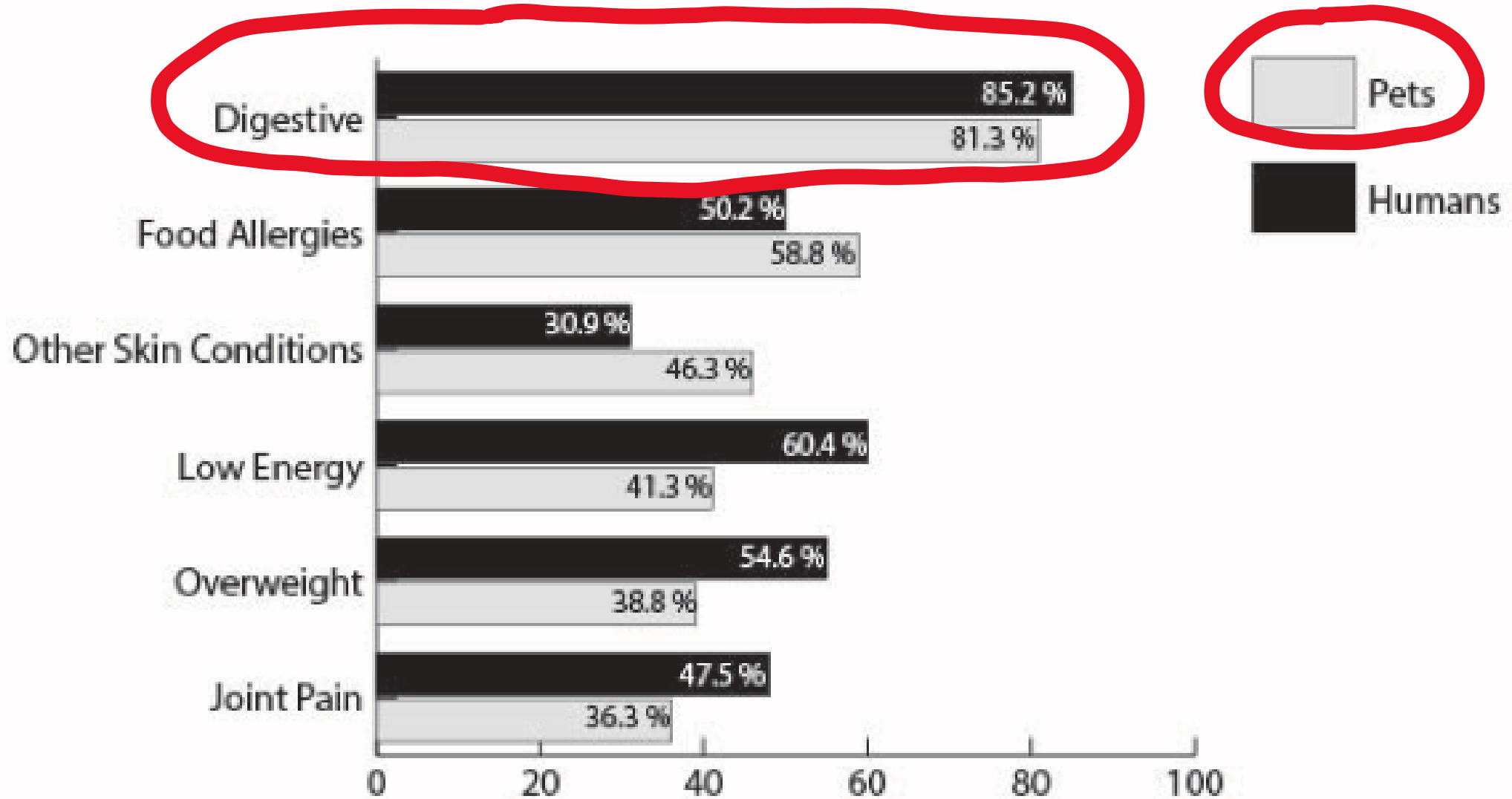
Underweight



## Digestive Improvement



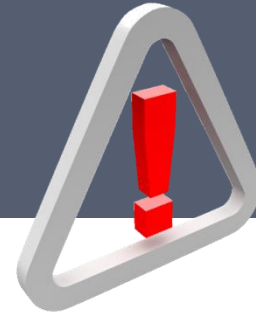
# Comparison, Percent Improved



# Reported Improvements (Human)

**Gastrointestinal:** Irritable Bowel, Crohn's Disease, acid reflux, ulcers, gut pain, bloating

# Livestock



## Gastrointestinal:

- diarrhea
- gut bacteria imbalance
- intestinal damage



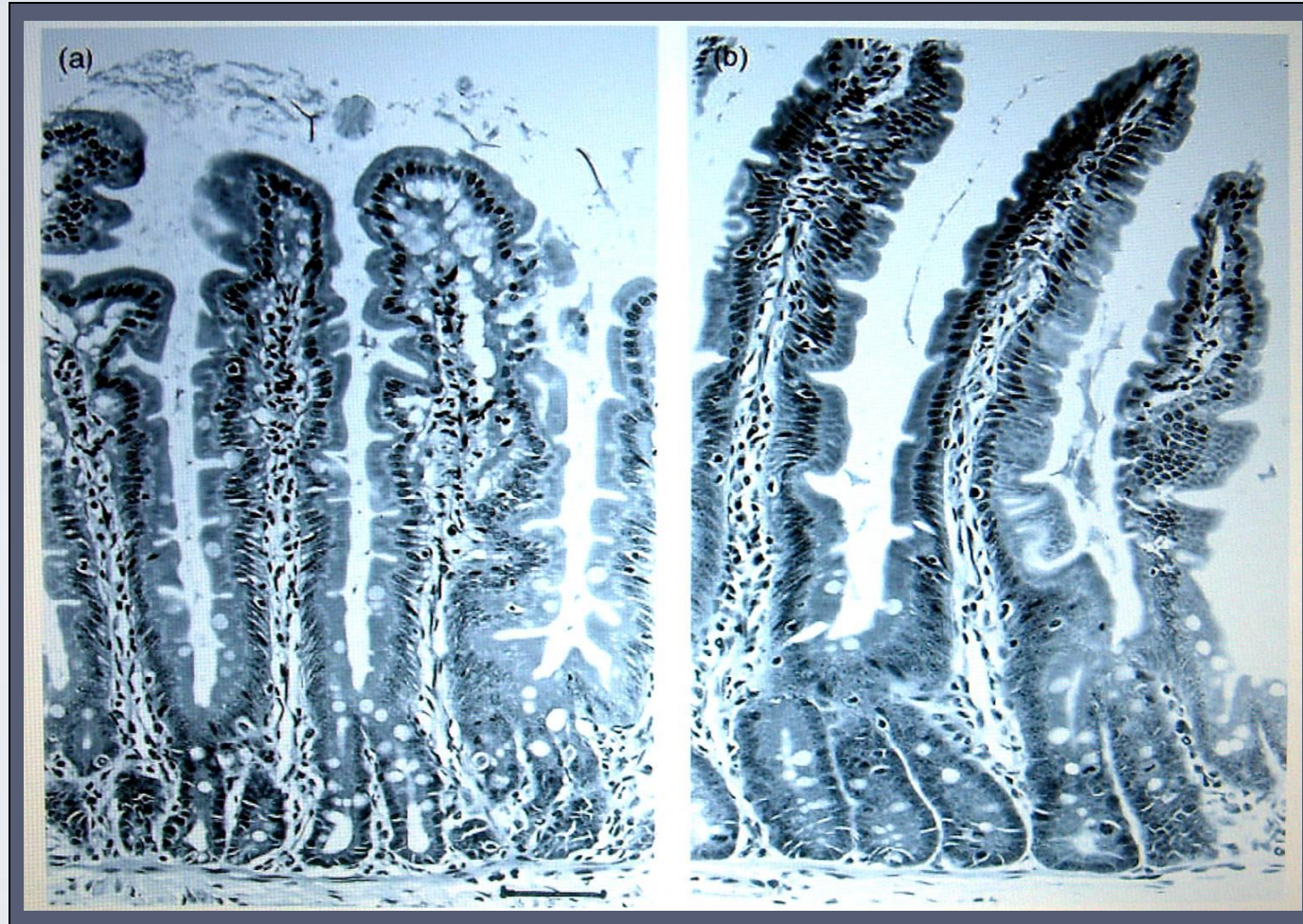


# Animal **Feeding** Studies

## **Gastrointestinal:**

- gut bacteria
- severe stomach inflammation
- stomach lesions
- excessive growth/necrosis or damage of intestinal villi
- reduced ability to digest protein and minerals

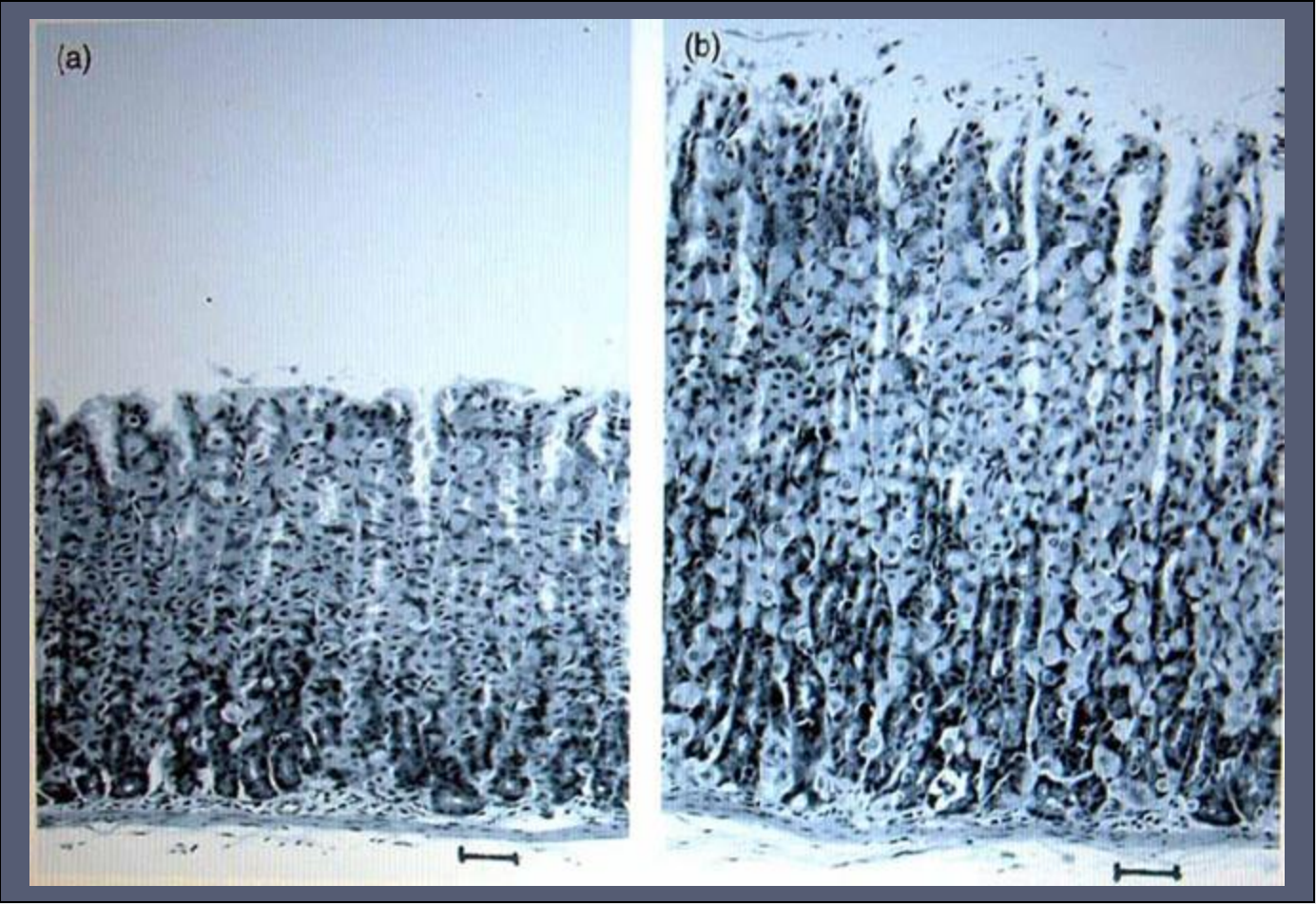
# Intestinal Wall



Non-GM

GM

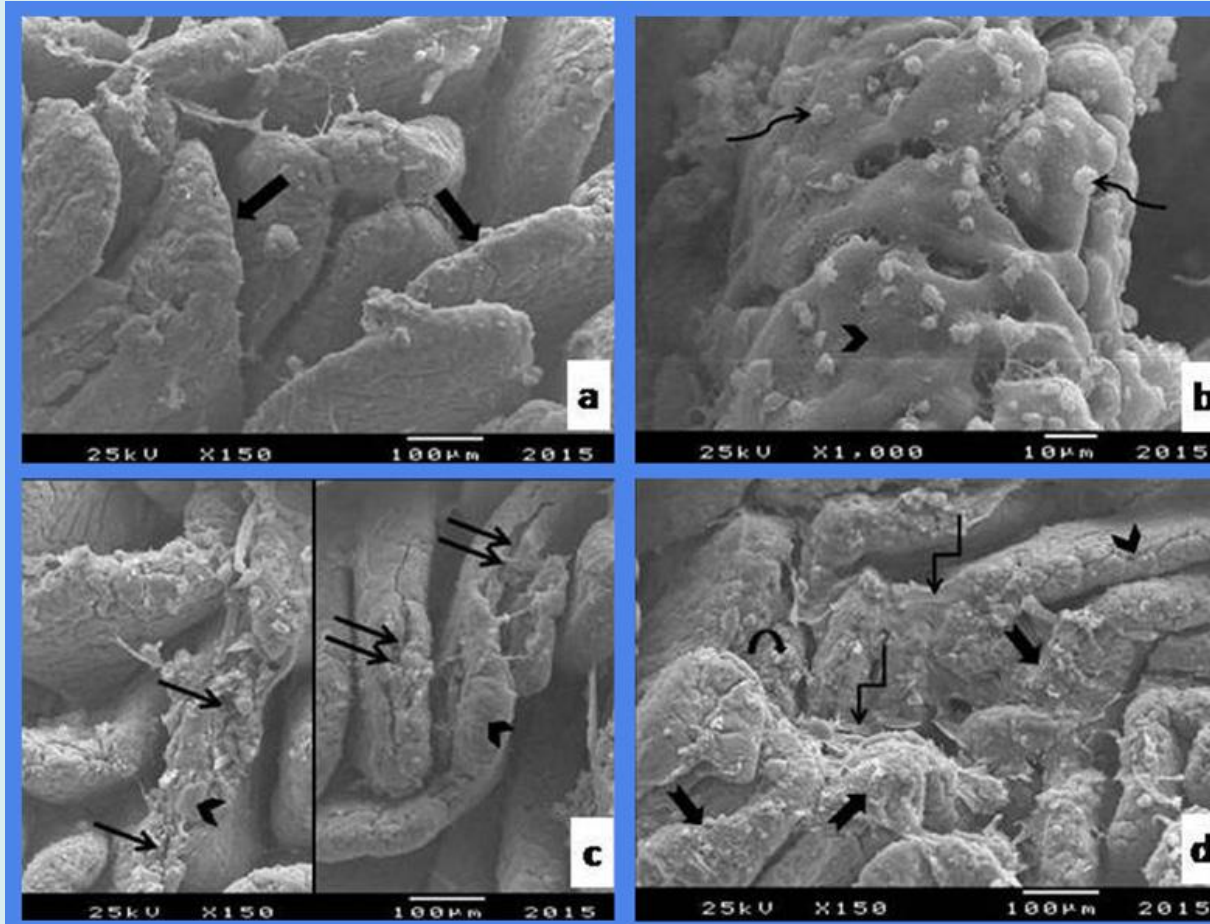
# Stomach lining



**Non-GM**

**GM**

# Damaged Intestines of Rats fed Bt corn



Normal intestine  
of rats fed  
non-GM corn

Intestine of rats fed  
GM corn, showing  
erosions, fissures,  
damaged cells

# Stomach Inflammation

A long-term toxicology study on pigs fed GM soy and GM corn



Normal color



Inflamed, irritated

# GLYPHOSATE:

Damages microvilli and suppresses  
digestive enzymes



# Human Studies

## Bt corn



**Bt-toxin from corn  
creates holes and  
leakage in human cells**

(Mesnage, J. Applied Toxicology, 2012)

# GLYPHOSATE:

Antibiotic

Disrupts the **Microbiome**

Bees, Poultry, Rats, Zebrafish, Cows, Earthworms, Humans





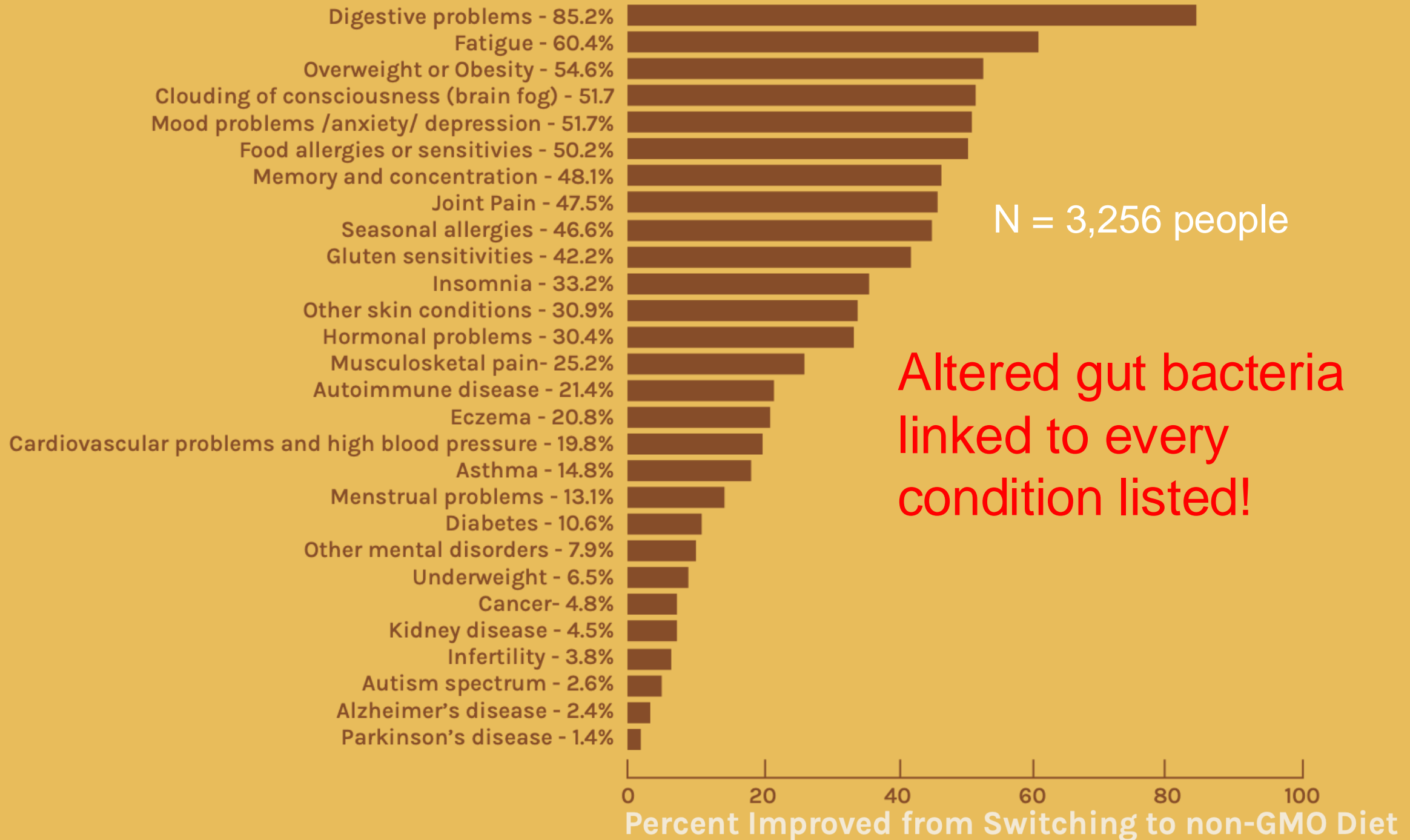
# IBD is driven by

- Low diversity
- Low short chain fatty acids
- Drop in bacteria that inhibit inflammation
- Increased ammonia
- Higher pH
- Dysbiosis

## Alterations in human gut microbiome composition and metabolism after exposure to glyphosate and Roundup and/or a spore-based formulation using the SHIME® technology

[R. Mesnage](#), [M. Calatayud](#), [C. Duysburgh](#), [M. Marzorati](#), [M. Antoniou](#) [less](#) • Published 17 December 2021 • Biology • bioRxiv





# GLYPHOSATE:

Promotes Leaky Gut

Blocks mineral absorption

Damages the mitochondria

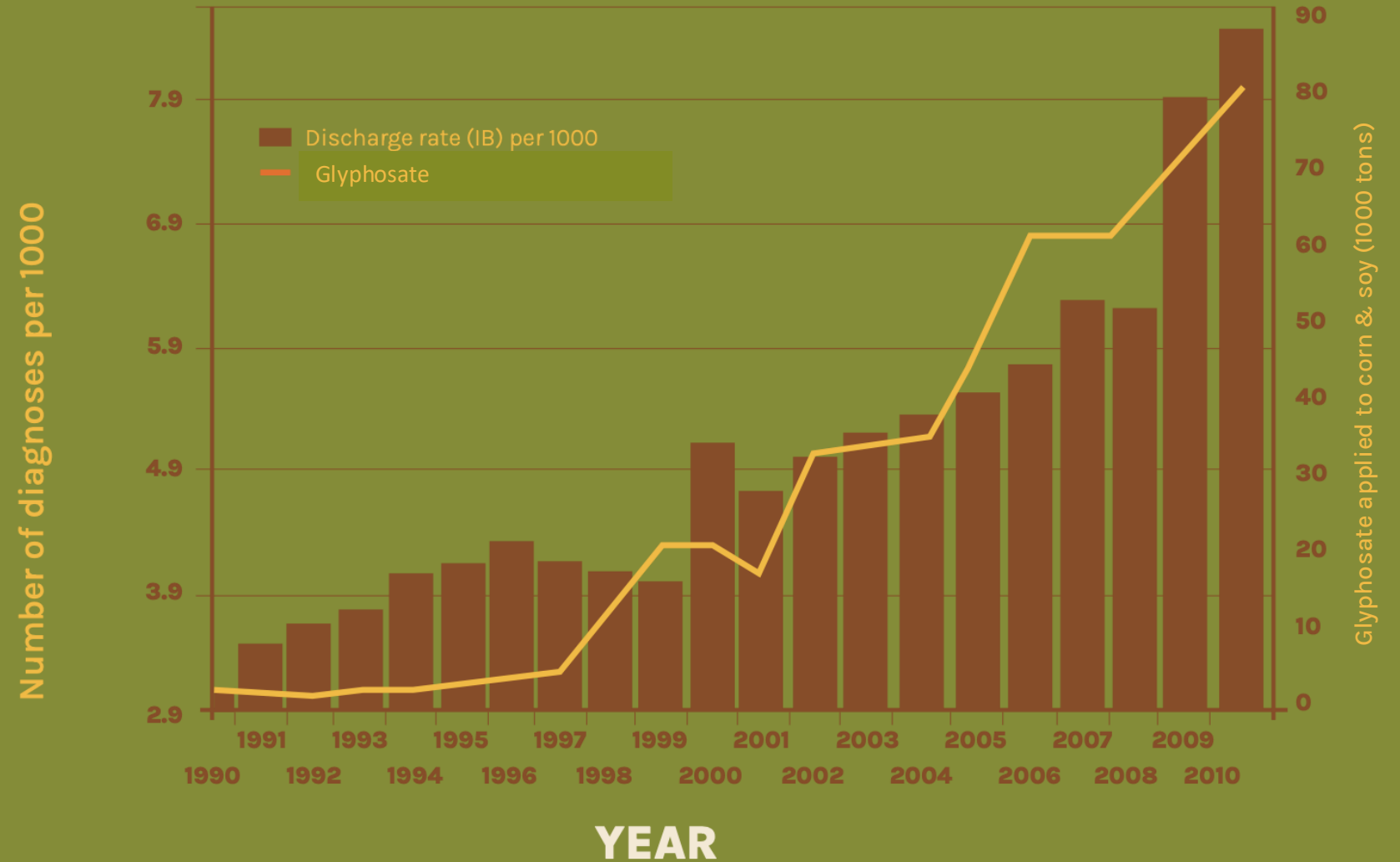
Inhibits detoxification



# Inflammatory Bowel Disease

Sources: USDA & CDC

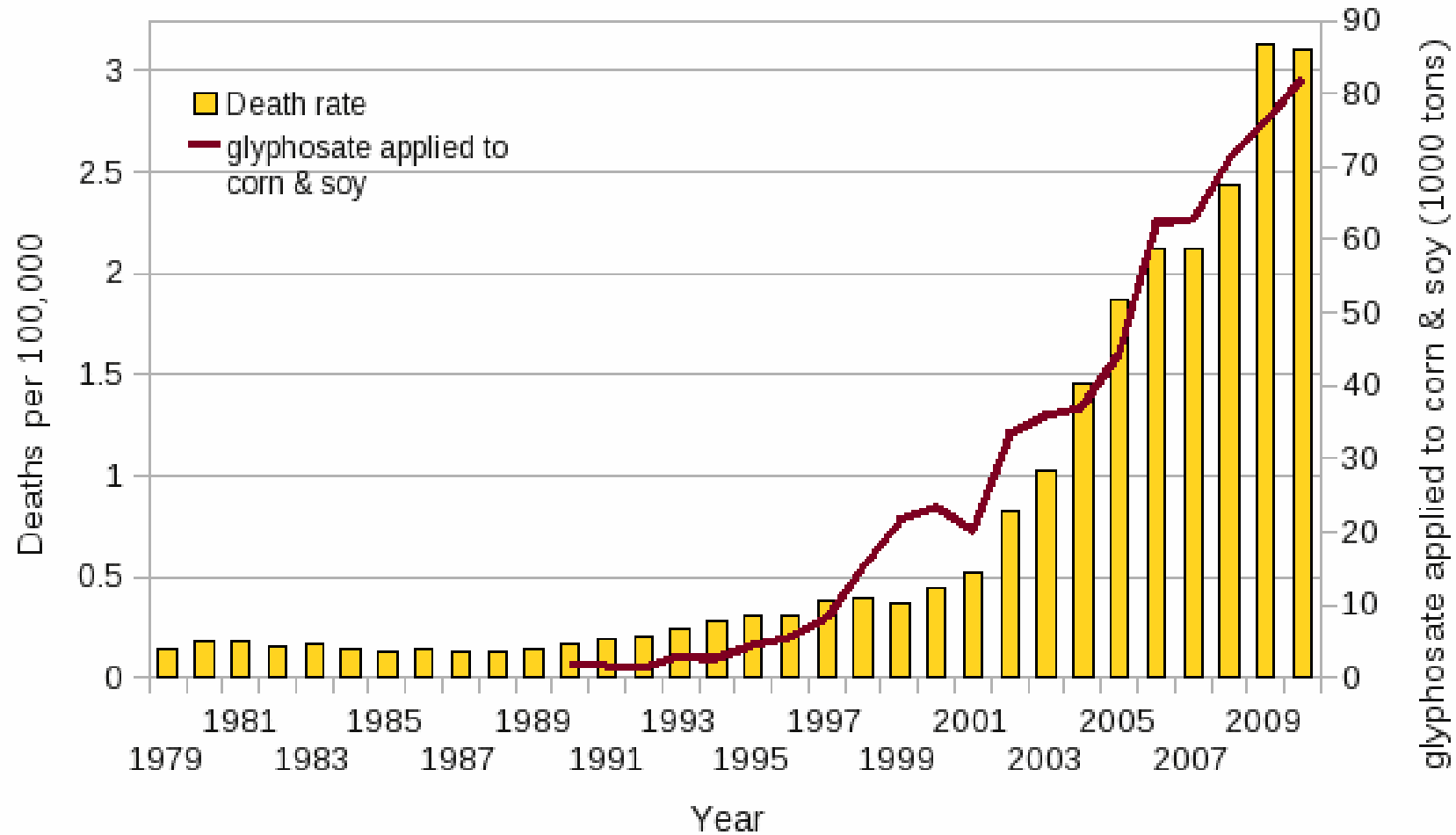
(Crohn's and Ulcerative Colitis) plotted against glyphosate applied to corn and soy ( $R = 0,9378$ ,  $p \leq 7.068e-08$ )



# Age Adjusted Deaths due to Intestinal Infection

(ICD A04, A09; 008, 009)

Data Sources: USDA & CDC

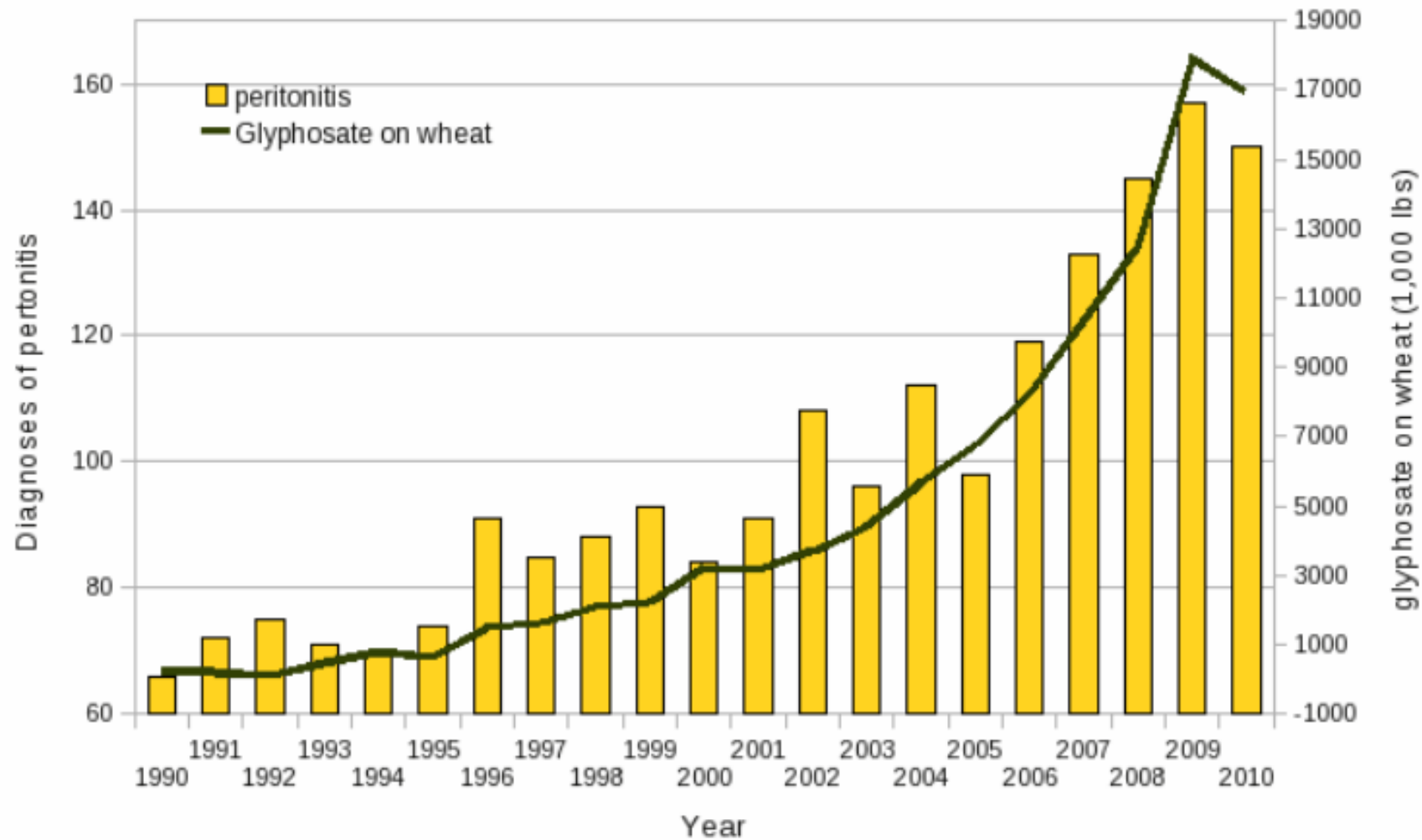


## Hospital discharge diagnoses (any) of peritonitis ICD K65 & 567

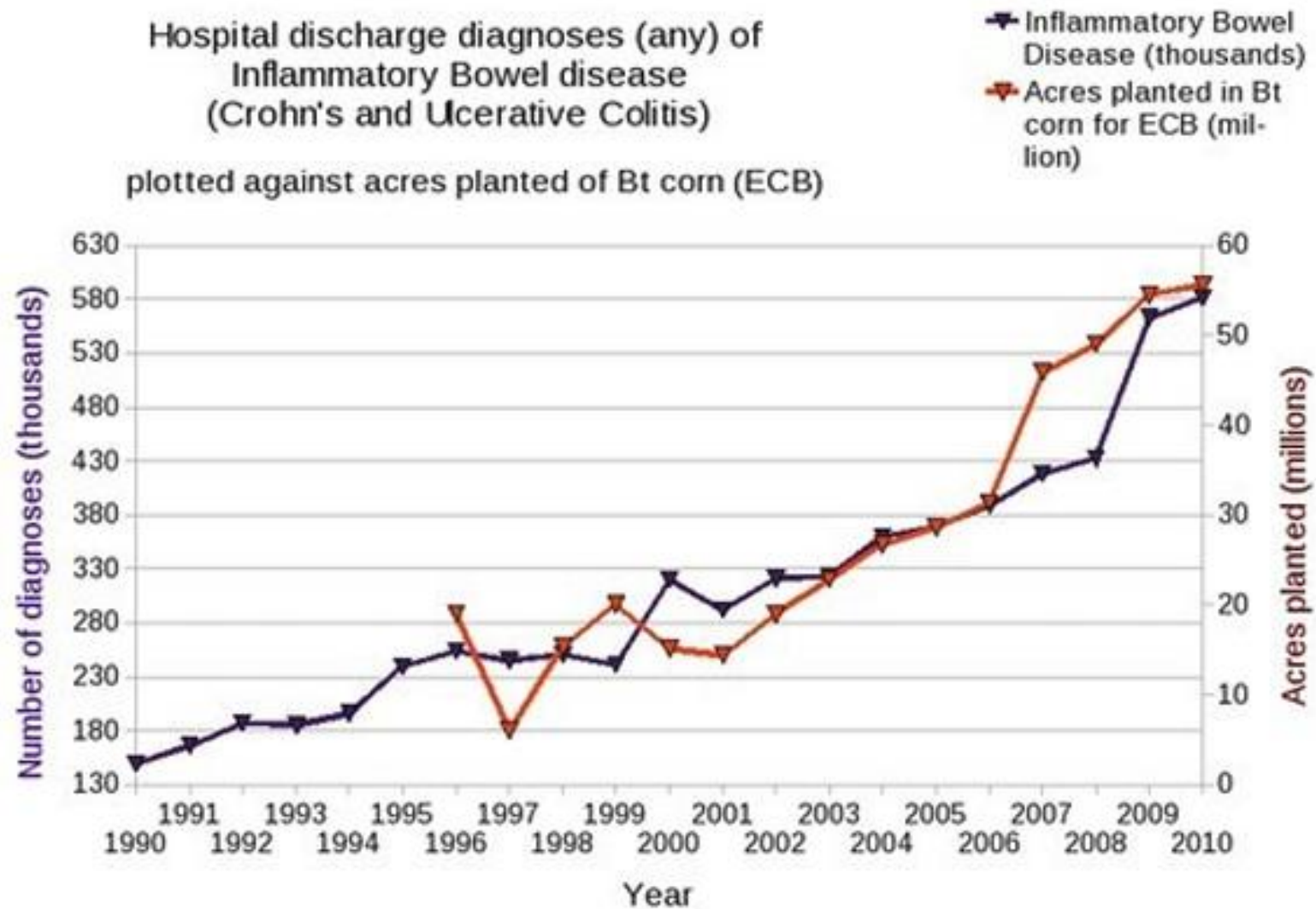
plotted against glyphosate applications to wheat

( $R = 0.9635$ ,  $p \leq 1.5e-08$ ) S

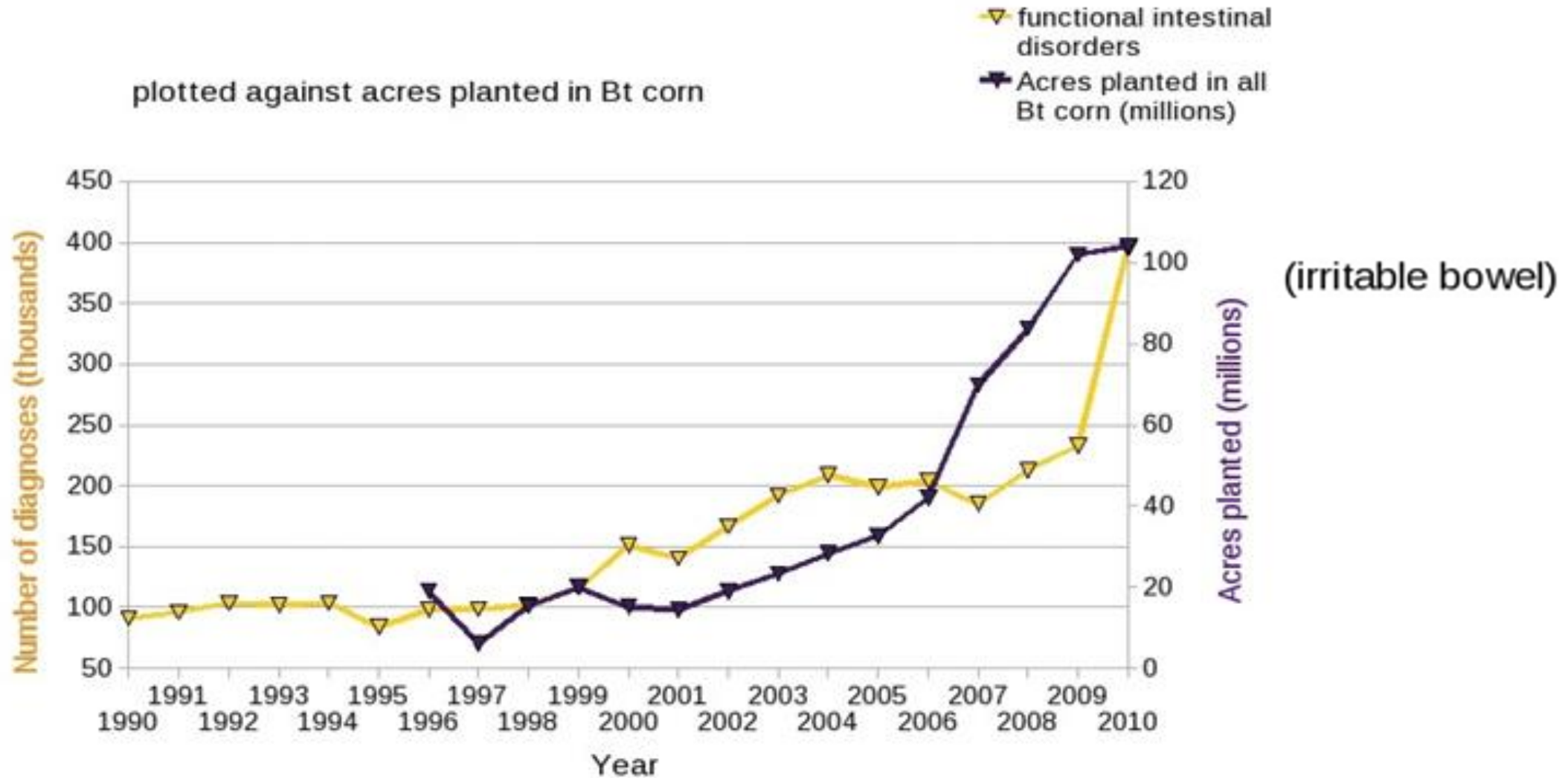
Sources: USDA:NASS; CDC



*Figure 2. IBD diagnoses and acres of Bt corn<sup>107</sup>*



# Hospital diagnosis (any) for Functional Bowel disorder *and acres of Bt corn*





# **Glyphosate as Ripening Agent**

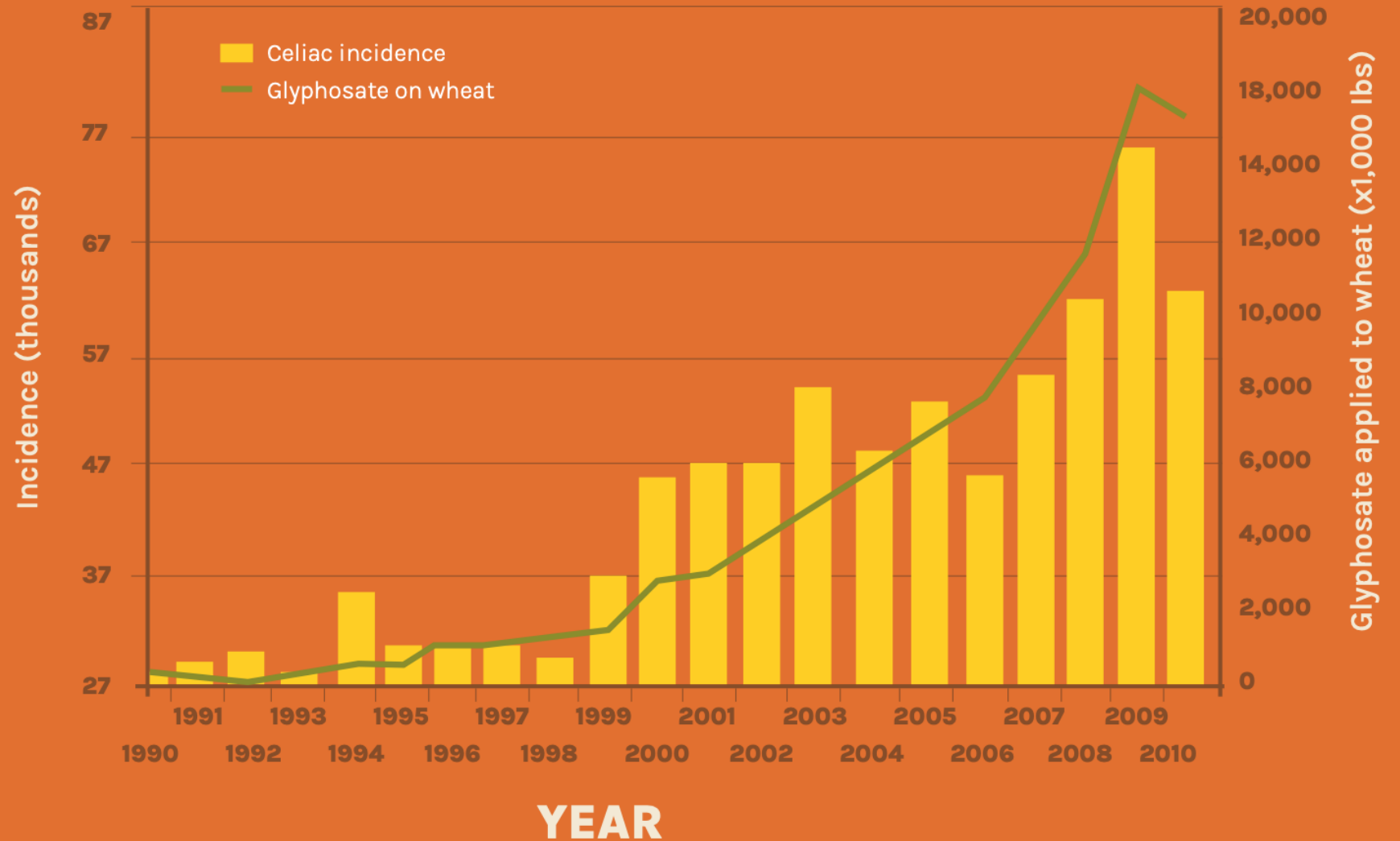


**Sprayed on crops just before  
harvest, as desiccant**

# Celiac Disease

Hospital discharge. Sources: USDA:NASS; CDC

Glyphosate applications  
to wheat ( $R = 0.9759$ ,  
 $p \leq 1.864e-06$ )





## **Animals that avoided GMOs**

**Rats, Mice, Cattle, Pigs, Squirrels, Geese, Dogs,  
Chickens, Elk, Deer, Raccoons & Buffaloes**

# And the Mice Prefer.....



GMO Corn



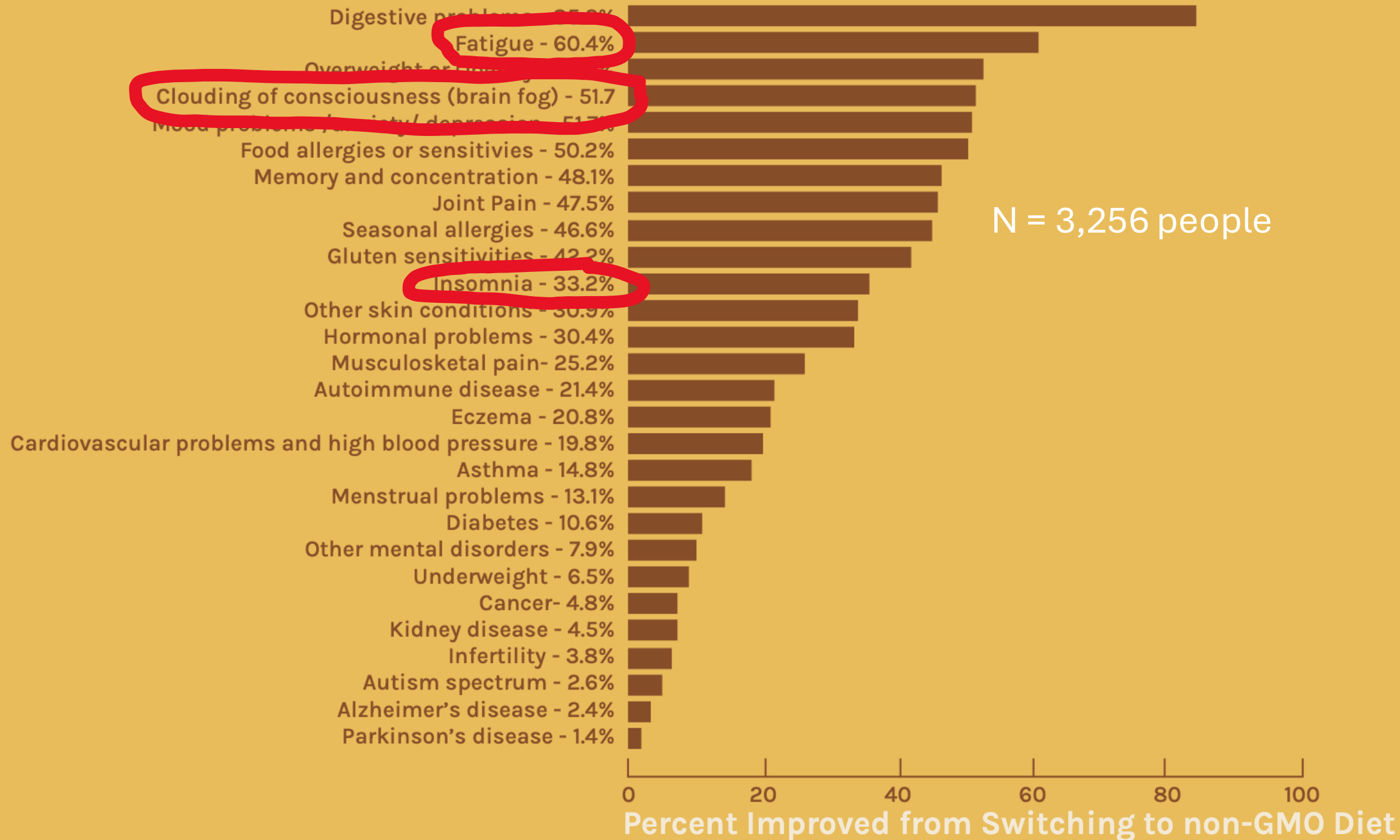
Non-GMO Corn

Is Your Low Energy  
Caused by GMOs  
and Roundup?

Fatigue

Brain fog

Insomnia



# **Glyphosate:** Some Biological Effects

## **Brain fog and fatigue**

- Depletes important minerals
- Damages mitochondria



# **Glyphosate:** Blocks Shikimate pathway

## **Sleep**

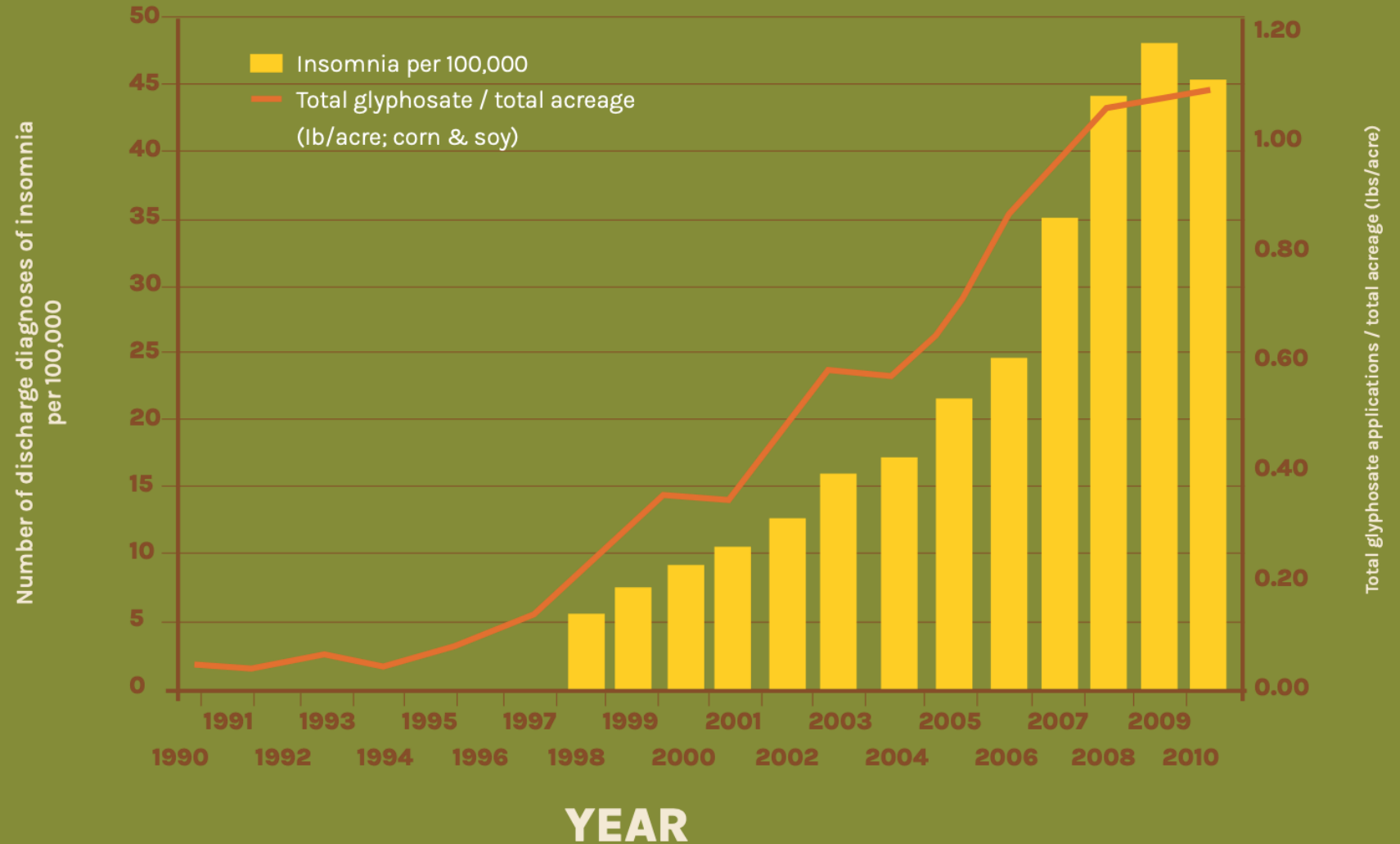
- Gut bacteria
- L-Tryptophan
- Serotonin
- Melatonin
- Circadian rhythms



# Insomnia

Hospital discharge. Sources: USDA; CDC

Glyphosate applications corn & soy crops  
(R= 0.9749, p<= 1.29e-05)

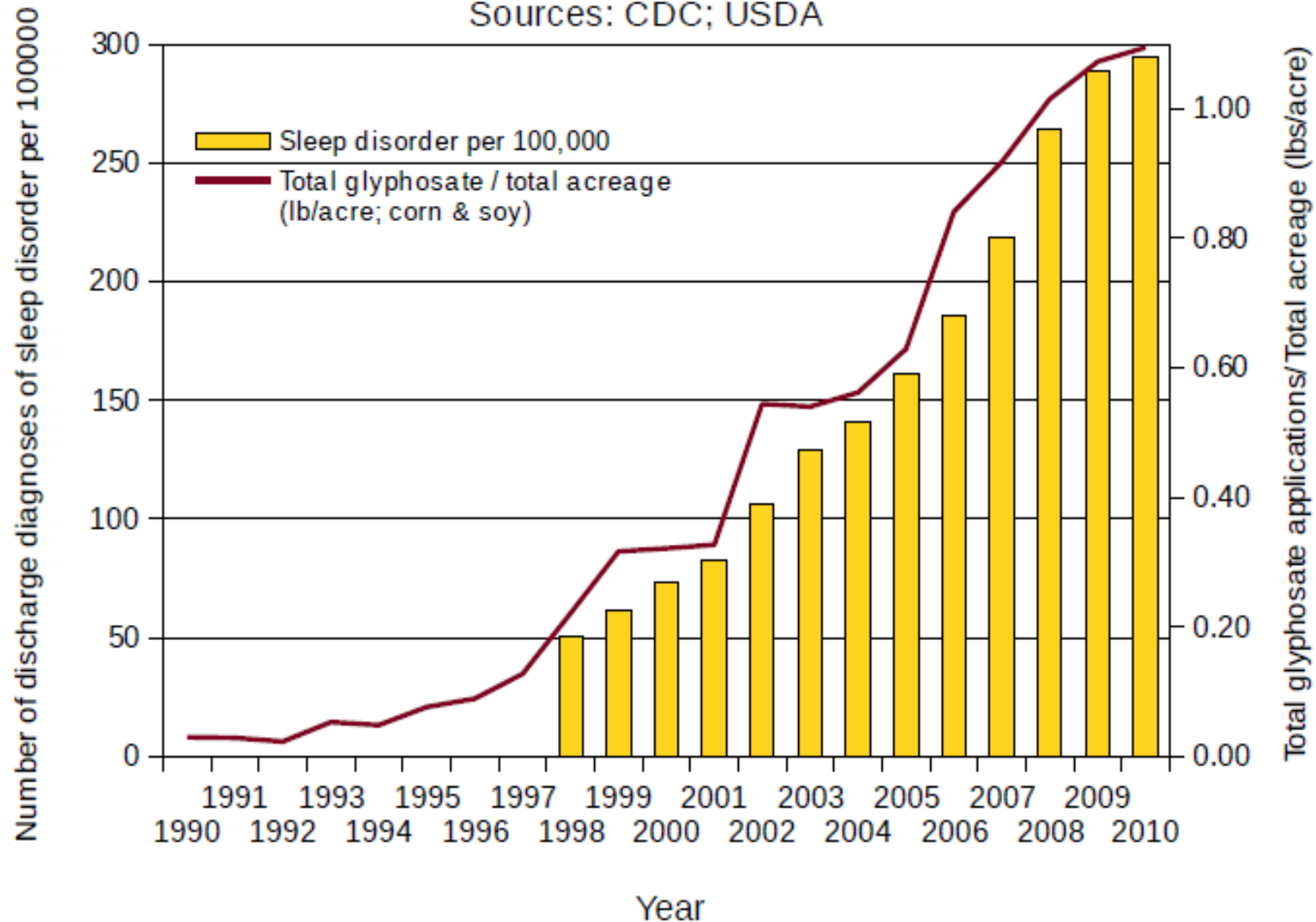


# Hospital Discharge Diagnoses of Sleep Disorders (ICD 327, 780.50-59, 307.41-49) & Glyphosate applied to corn & soy crops

$R = 0.9876$ ,  $p < 7.744 \times 10^{-6}$

Sources: CDC; USDA

On file



**SECRET  
INGREDIENTS**

Are GMOs, and other *secret ingredients* affecting your health?  
See the movie and find out.

BUTTERFLIES & BEES PRODUCTIONS PRESENTS  
A FILM BY JEFFREY SMITH AND AMY HART "SECRET INGREDIENTS" STARRING JEFFREY SMITH HOSTED BY JEFFREY BRONFMAN ROBERT M. QUINN ARIAN STEPHENS  
FEATURING KATHLEEN DICHAHA JEFFREY SMITH ZEN HONICUTT MARCIA SCHAEFER DC DAVID PERLMUTTER MD MICHELLE PERRO MD  
"AMY HART AND PAUL GOODSON" "AMY HART AND MARK SMITH" "DONNA DE LORY AND BEN LEINBACH"  
"AMY HART AND JEFFREY SMITH" "AMY HART AND JEFFREY SMITH"

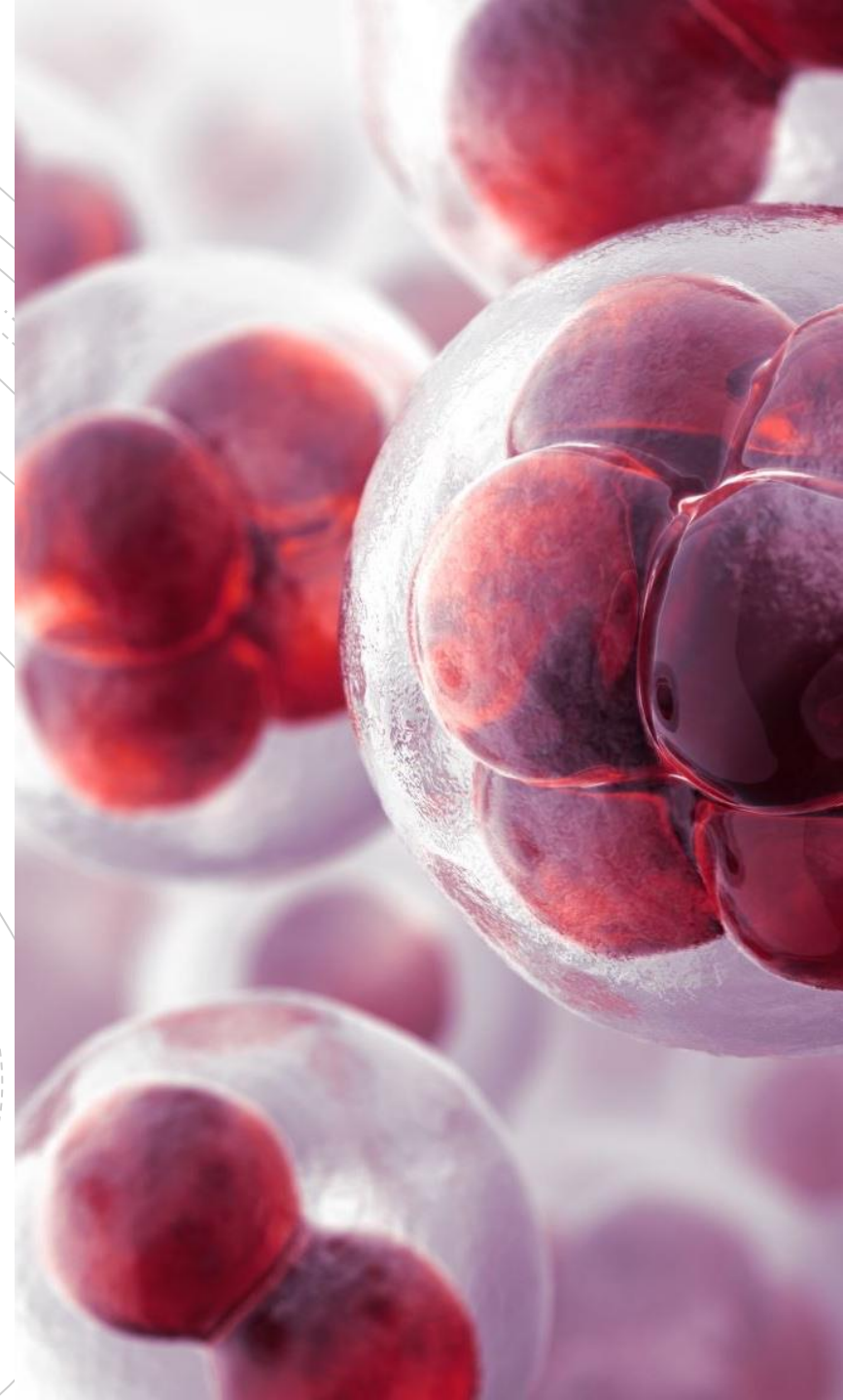
WINNER  
SPECIAL AWARDS  
OFFICIAL  
2014  
WINNER  
IMPACT AWARD  
ELIMINATE  
2014

SecretIngredientsMovie.com

This film is proudly sponsored by the San Francisco Film Society (SFFS).

[SecretIngredientsFilm.com](http://SecretIngredientsFilm.com)

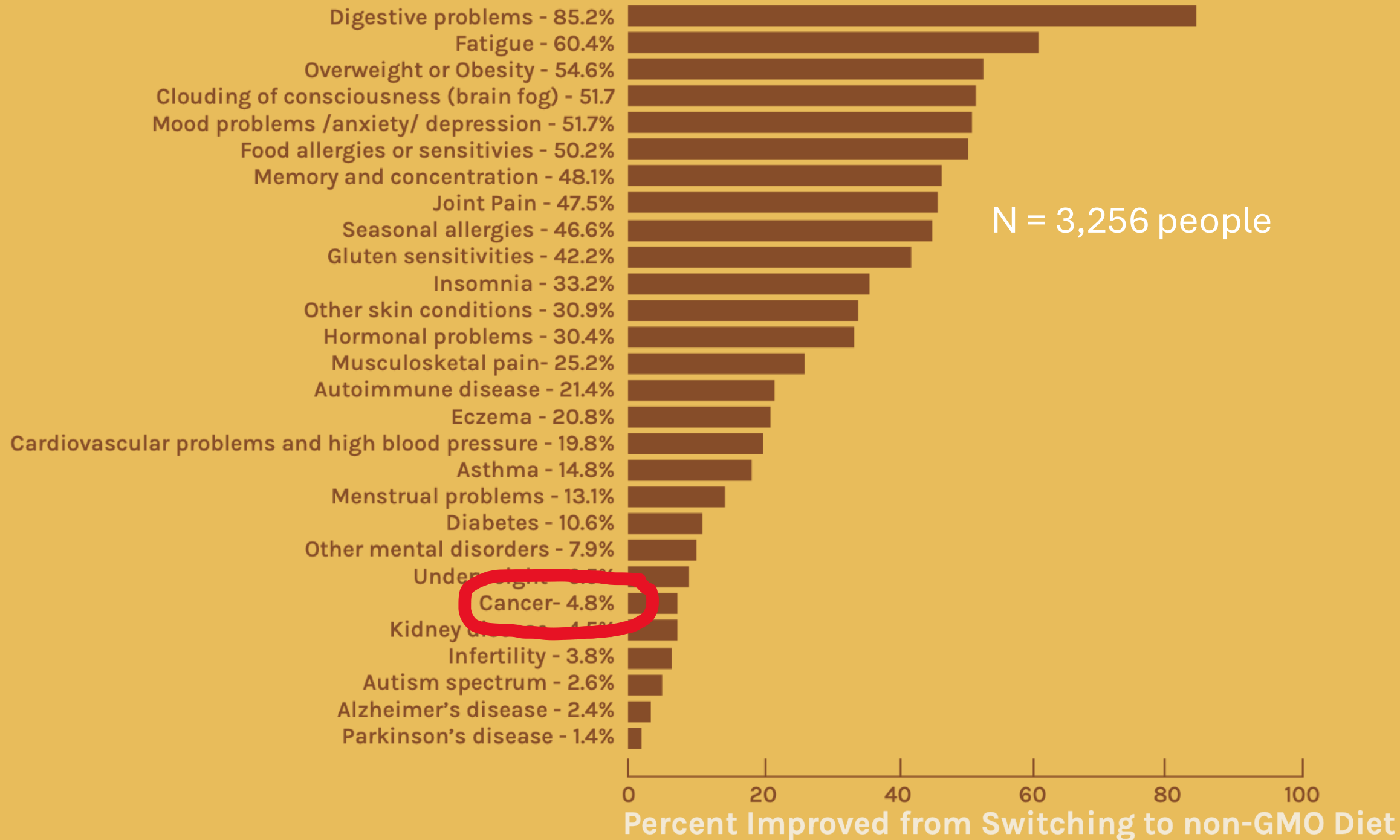
Are GMOs and Roundup  
a factor in your cancer?



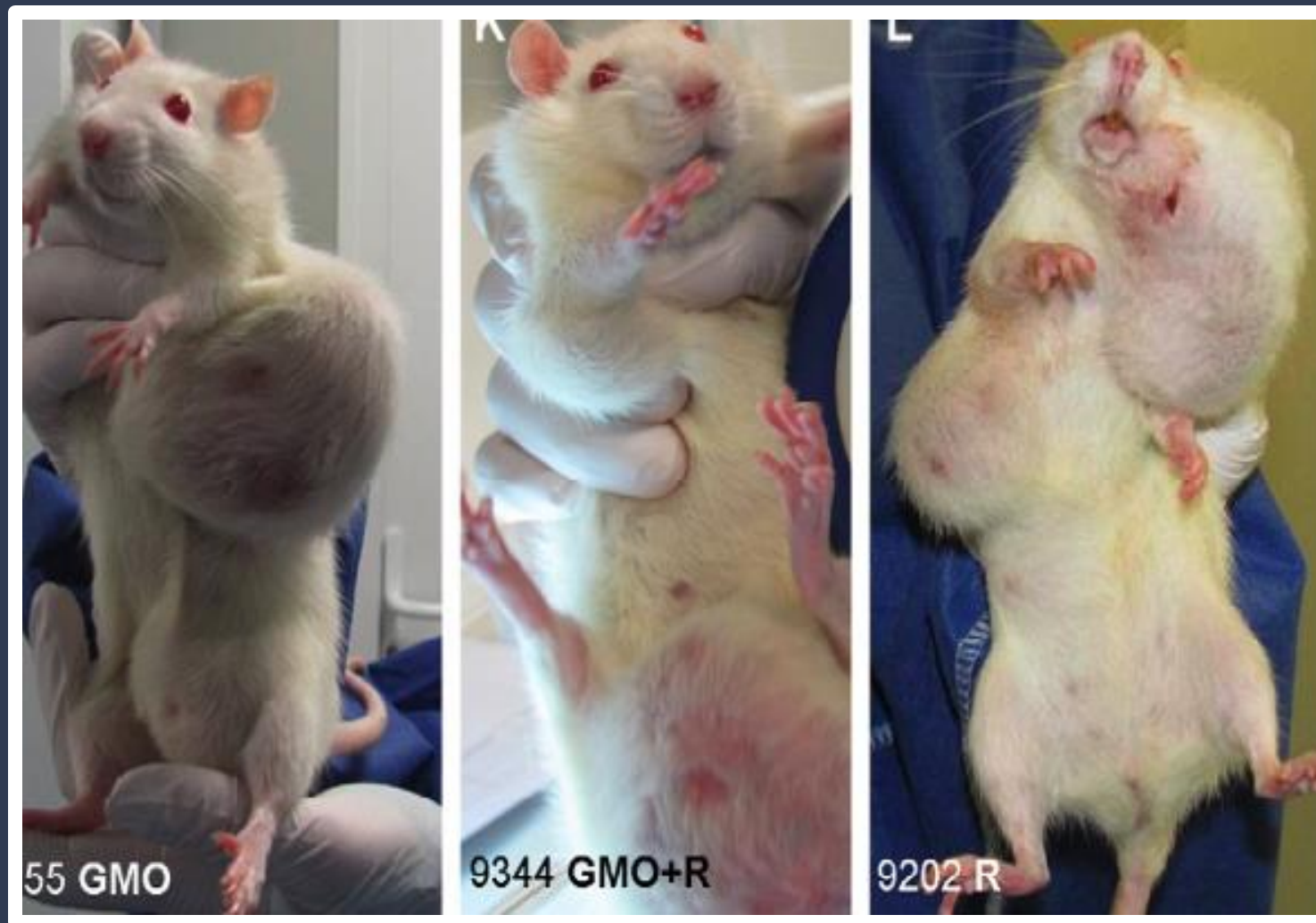
A blue flag with the World Health Organization logo (a caduceus) and the United Nations emblem (a globe) is flying in front of a modern, multi-story building with a grid-like facade. The sky is blue with some clouds.

# 2015, World Health Organization

“Glyphosate Probably Carcinogenic”

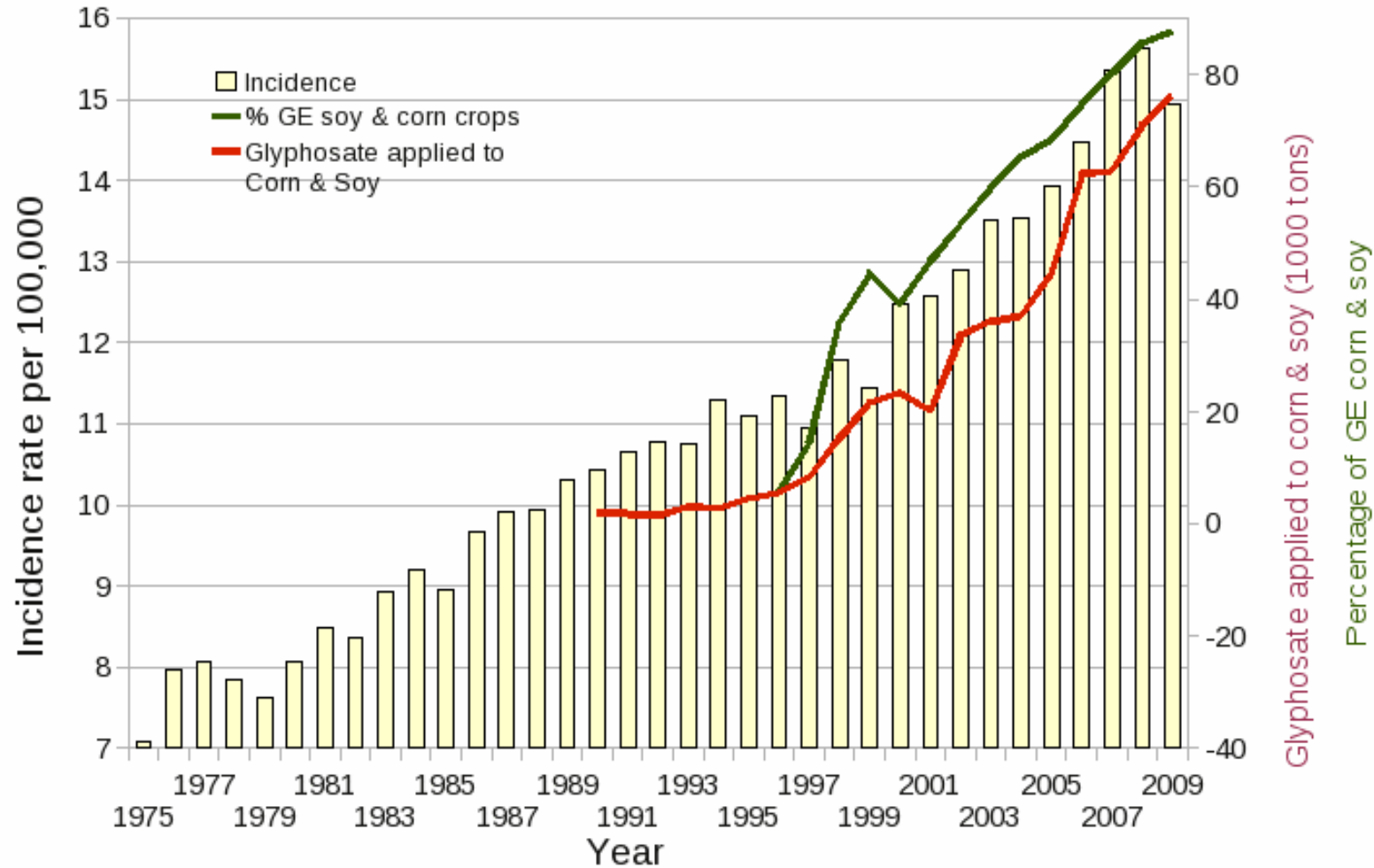


# Scientific Research



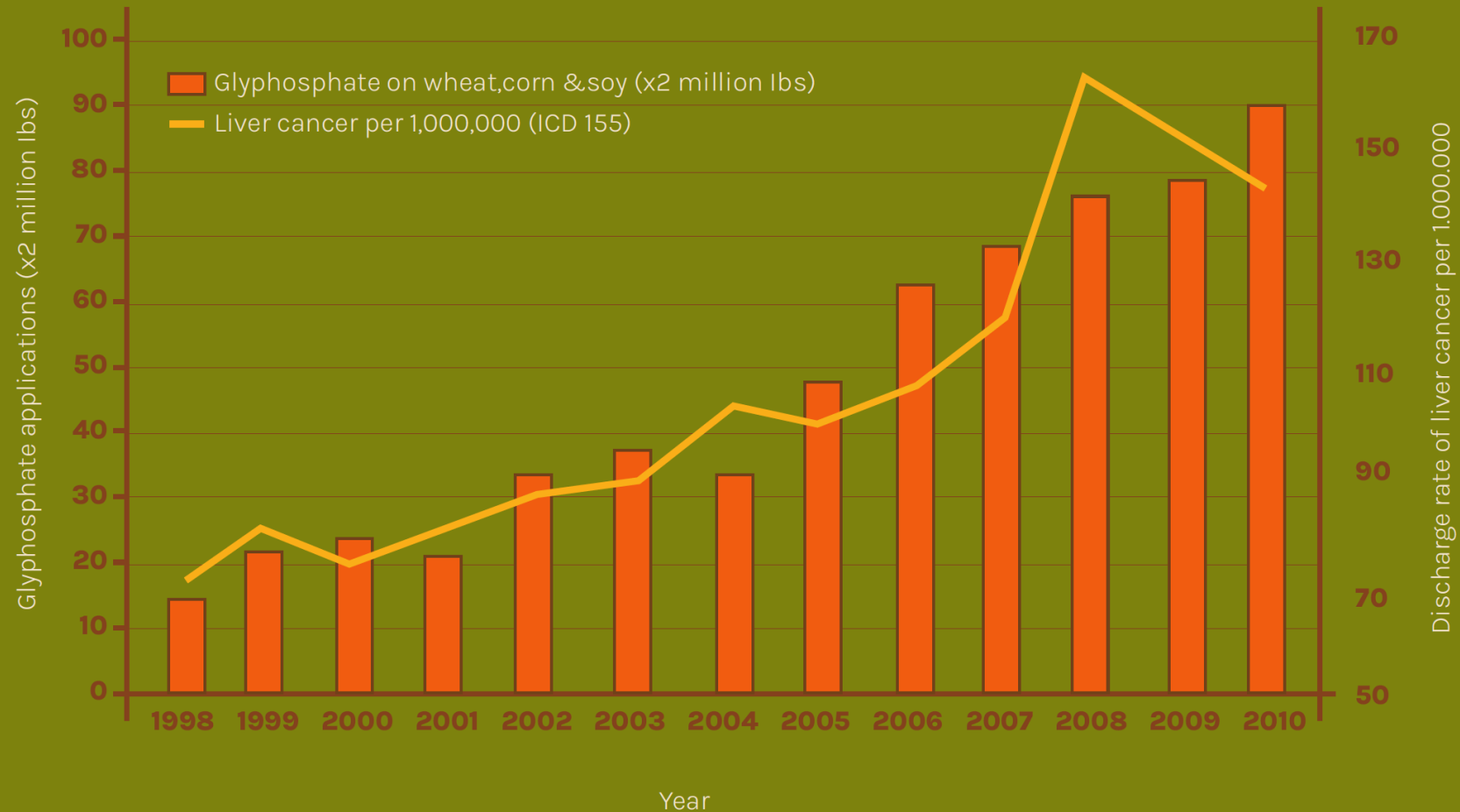
Kidney and Renal Pelvis Cancer Incidence (age adjusted)  
plotted against amount of glyphosate applied to corn & soy ( $R = 0.9734$ ,  $p \leq 1.98e-08$ )  
along with %GE corn & soy planted in U.S. ( $R = 0.94$ ,  $p \leq 1.978e-05$ )

Sources: USDA:NASS; SEER





## Hospital discharge rate of liver cancer ( $R=0.9316$ , $p \leq 5.988e-05$ ) and glyphosate applications to wheat, corn and soy

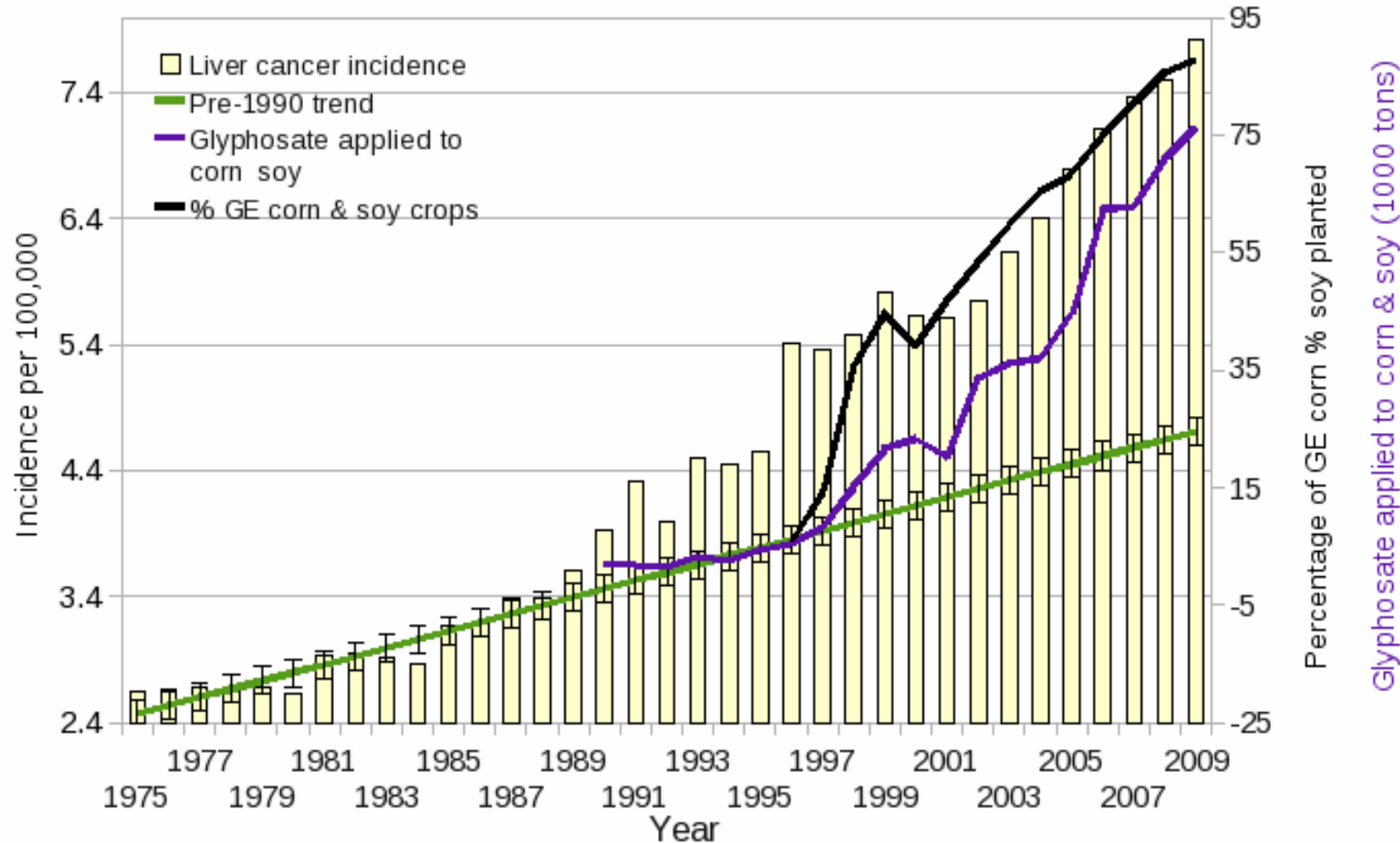


# Liver and Intrahepatic Bile Duct Cancer Incidence (age adjusted)

plotted against glyphosate applied to corn & soy ( $R = 0.9596$ ,  $p \leq 4.624e-08$ )

along with %GE corn & soy planted in U.S. ( $R = 0.917$ ,  $p \leq 5.402e-05$ )

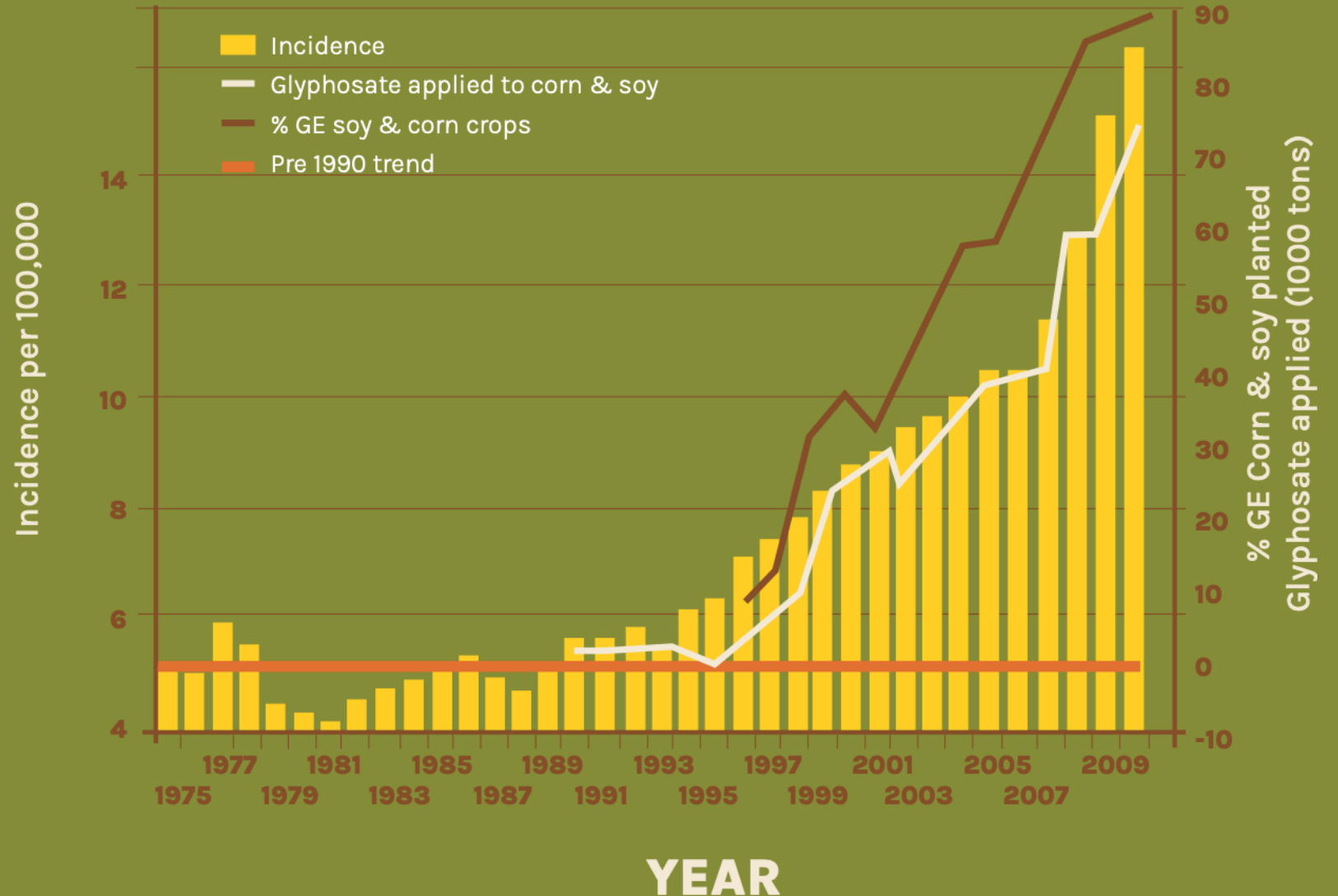
Sources: USDA:NASS; SEER



# Thyroid Cancer

Incidence (age adjusted). Sources: USDA:NASS; SEER

Plotted against glyphosate applied to U.S. corn & soy crops (R = 0.988, p <= 7.612e-09) along with %GE corn & soy crops R = 0.9377, p <= 2.152e-05

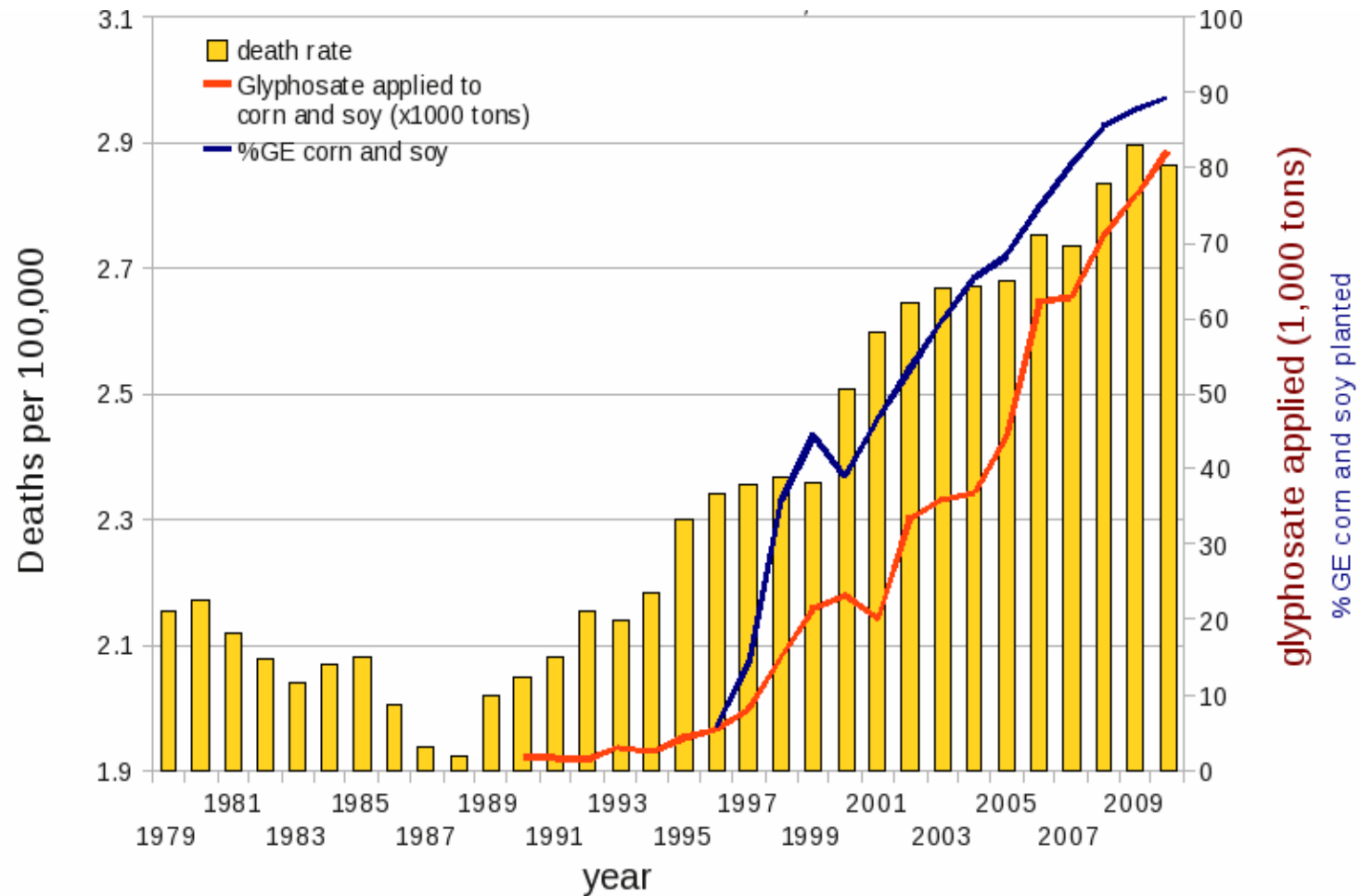


# Deaths due to Acute Myeloid Leukaemia (ICD C92.0 & 205.0)

plotted against %GE corn & soy ( $R = 0.9466$ ,  $p \leq 6.625e-06$ )

and glyphosate applied to corn & soy ( $R = 0.9293$ ,  $p \leq 1.143e-07$ )

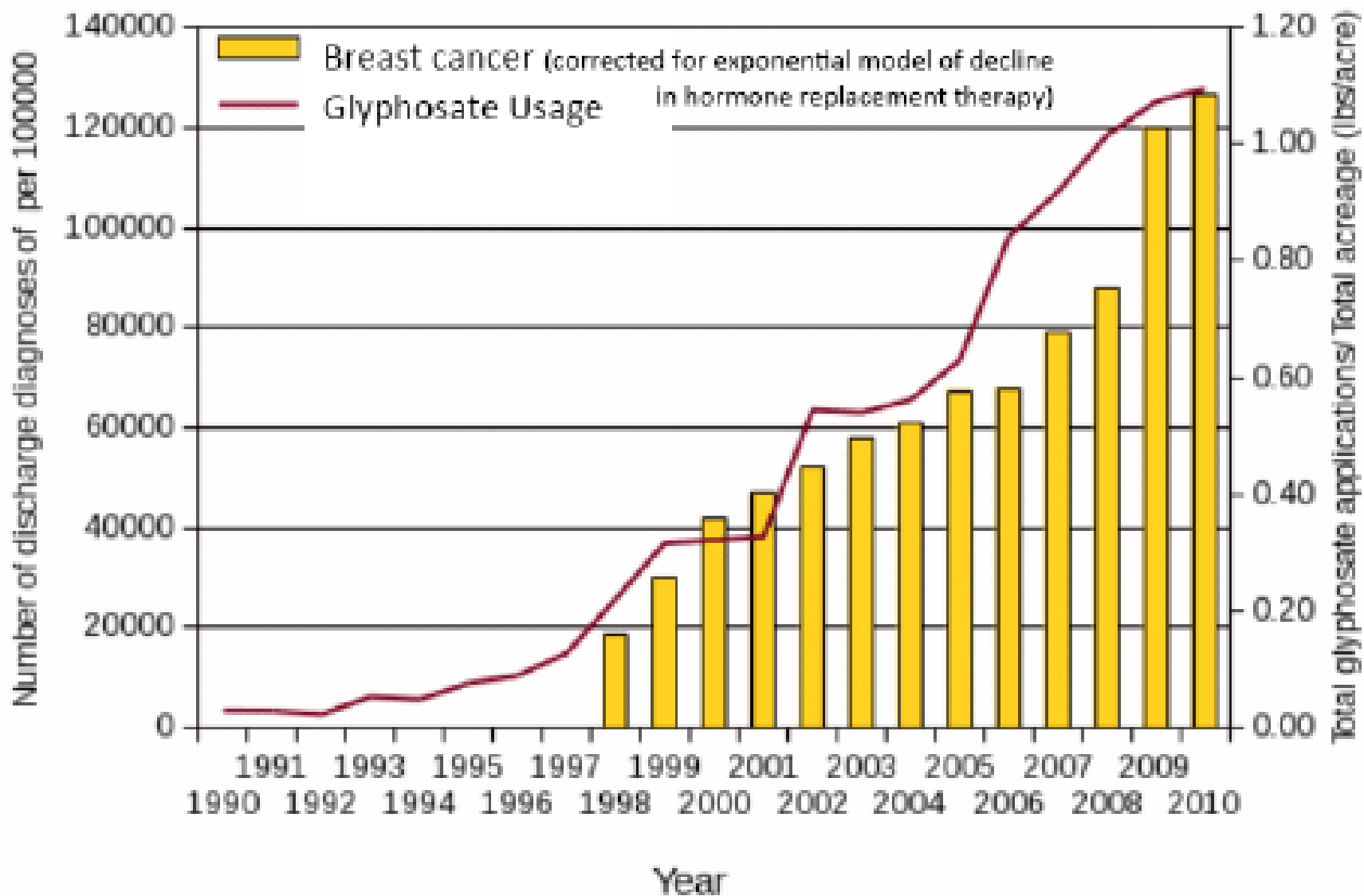
Sources: USDA:NASS; CDC



# Hospital Discharge Diagnoses of Breast Cancer & Glyphosate applied to corn & soy crops

$R = 0.9375, p < 0.0001132$

Sources: CDC; USDA



Diabetes

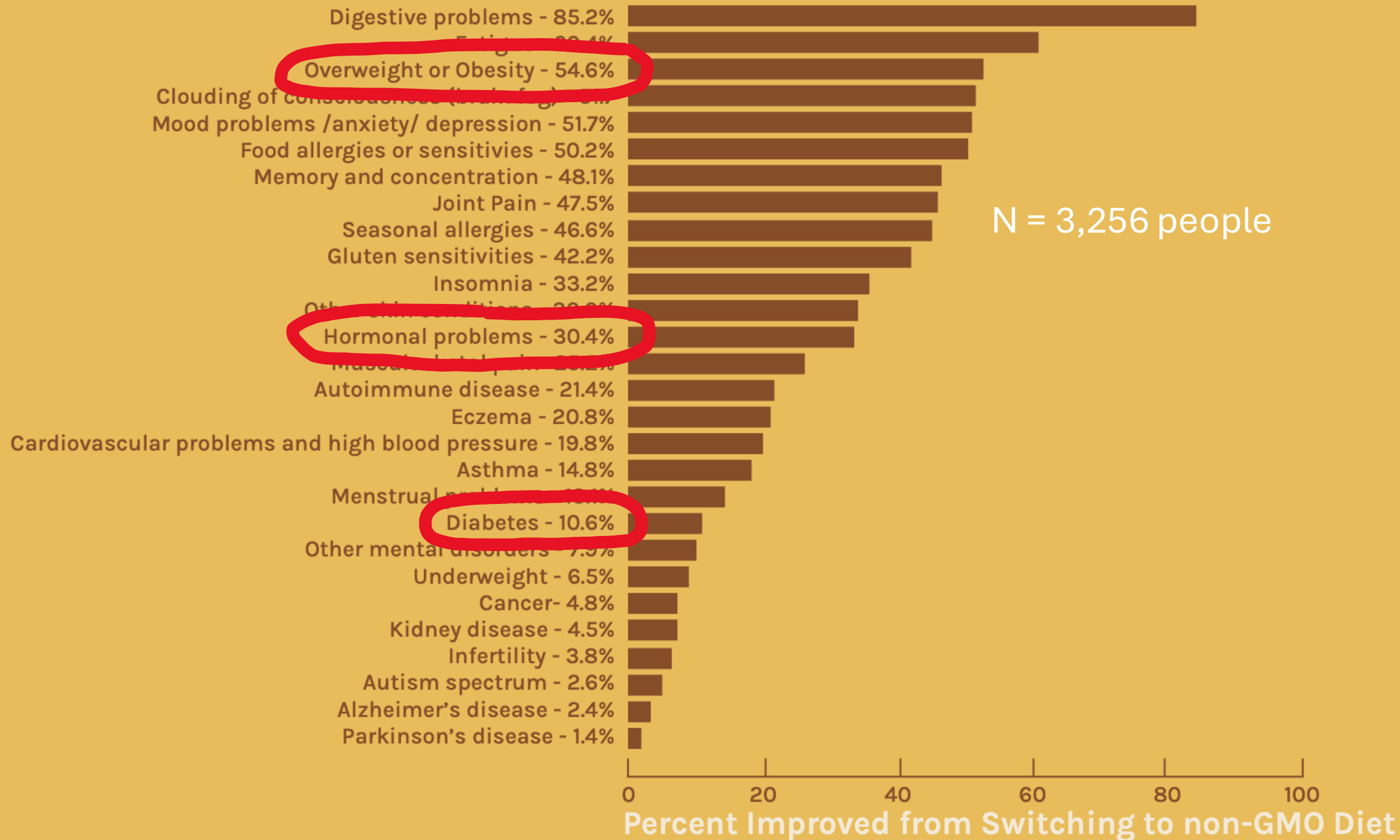
Obesity

Hormonal problems/endocrine disruption

Thyroid hormone, PCOS, low testosterone in men, dopamine, serotonin

Lipoprotein metabolism

Are Metabolic Diseases  
Caused by GMOs and Roundup?



# *Animal Feeding Studies*

## Blood sugar:

- insulin regulation

## Hormones:

- estrogen/testosterone ratios
- pituitary damage

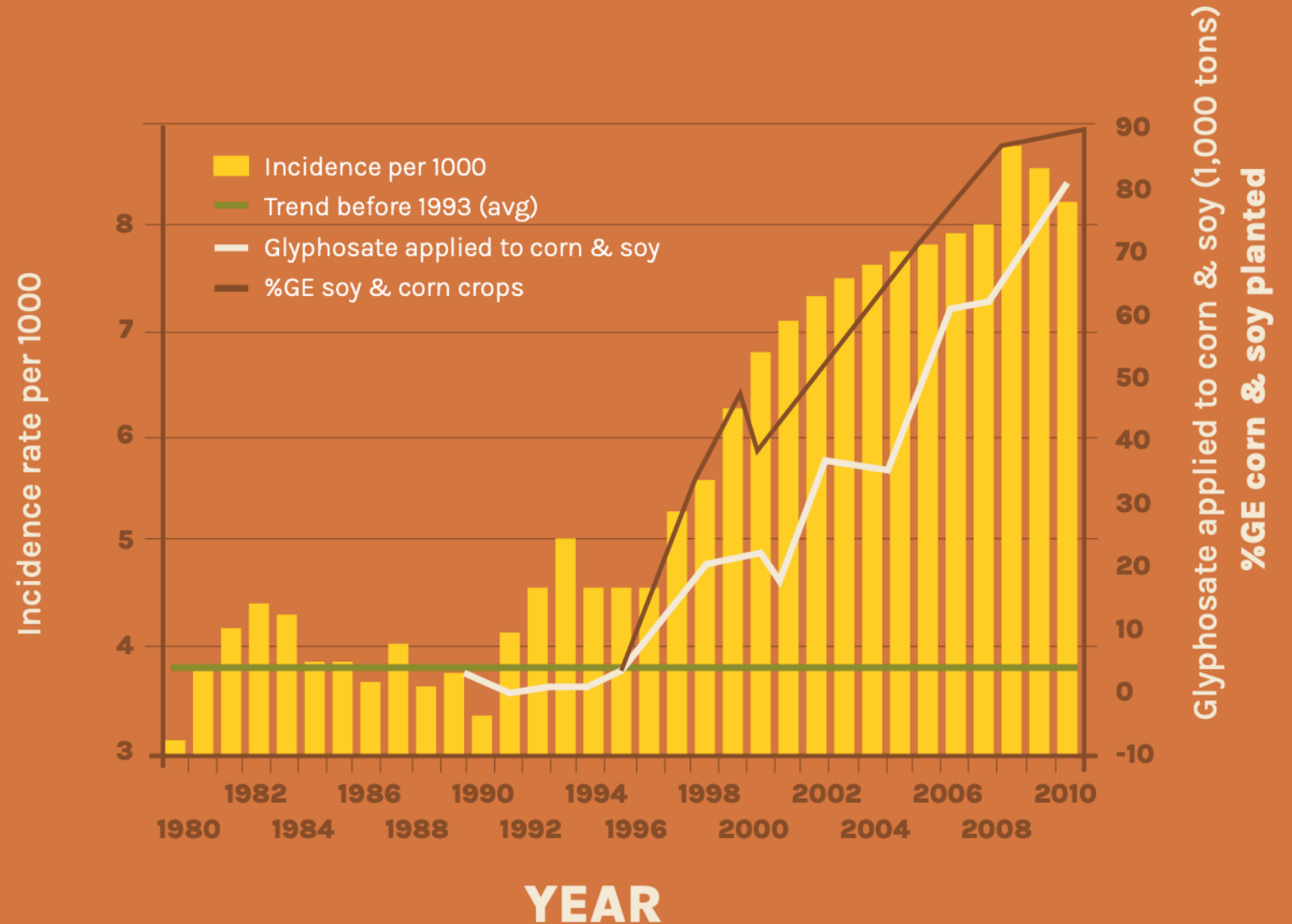




# Diabetes

Annual incidence. Sources: USDA:NASS; CDC

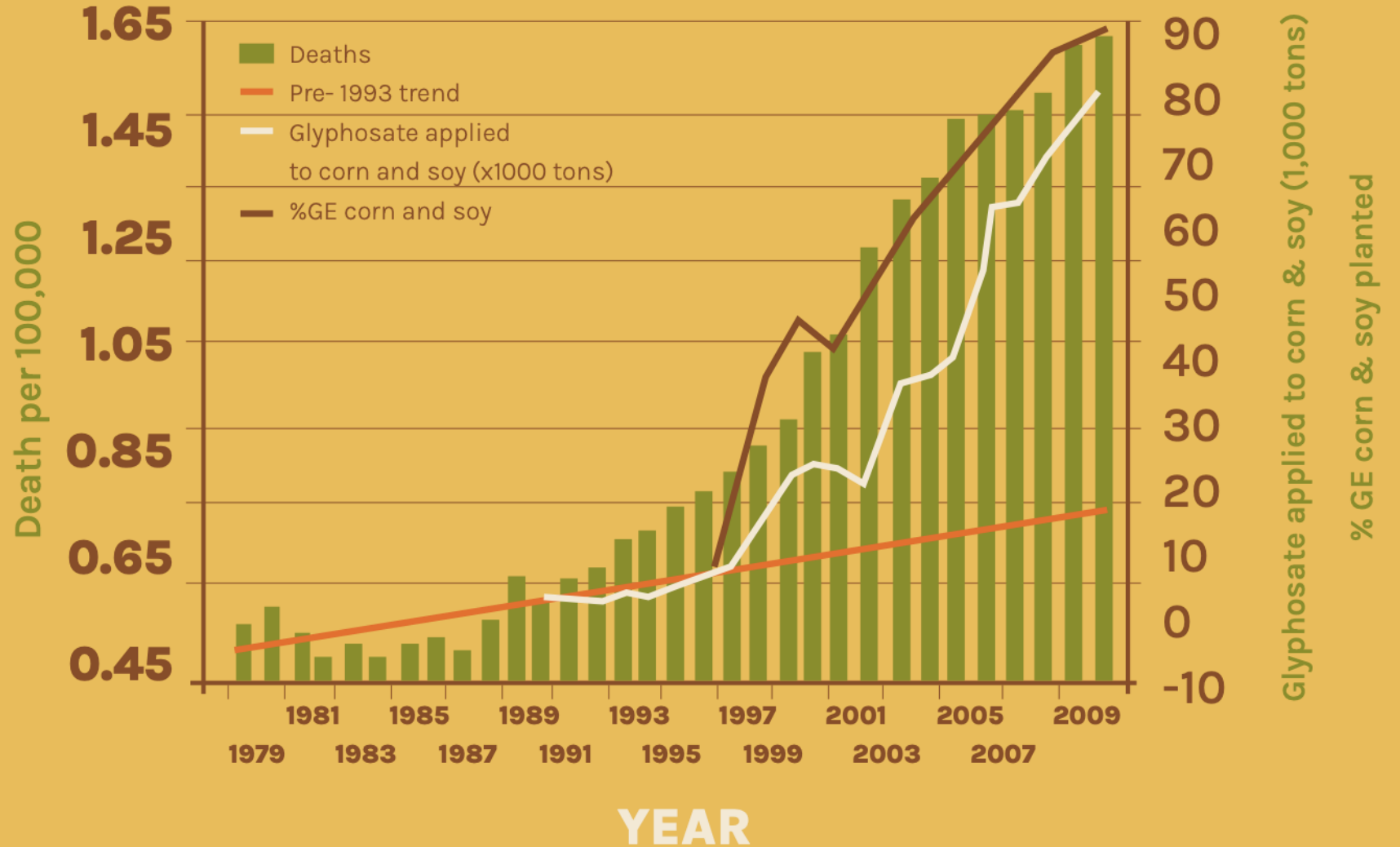
Plotted against %GE corn & soy crops planted ( $R = 0.9547$ ,  $p \leq 1.978e-06$ ) along with glyphosate applied to corn & soy in U.S. ( $R = 0.935$ ,  $p \leq 8.303e-08$ )



# Deaths from Obesity

Age adjusted. Sources: USDA:NASS; CDC

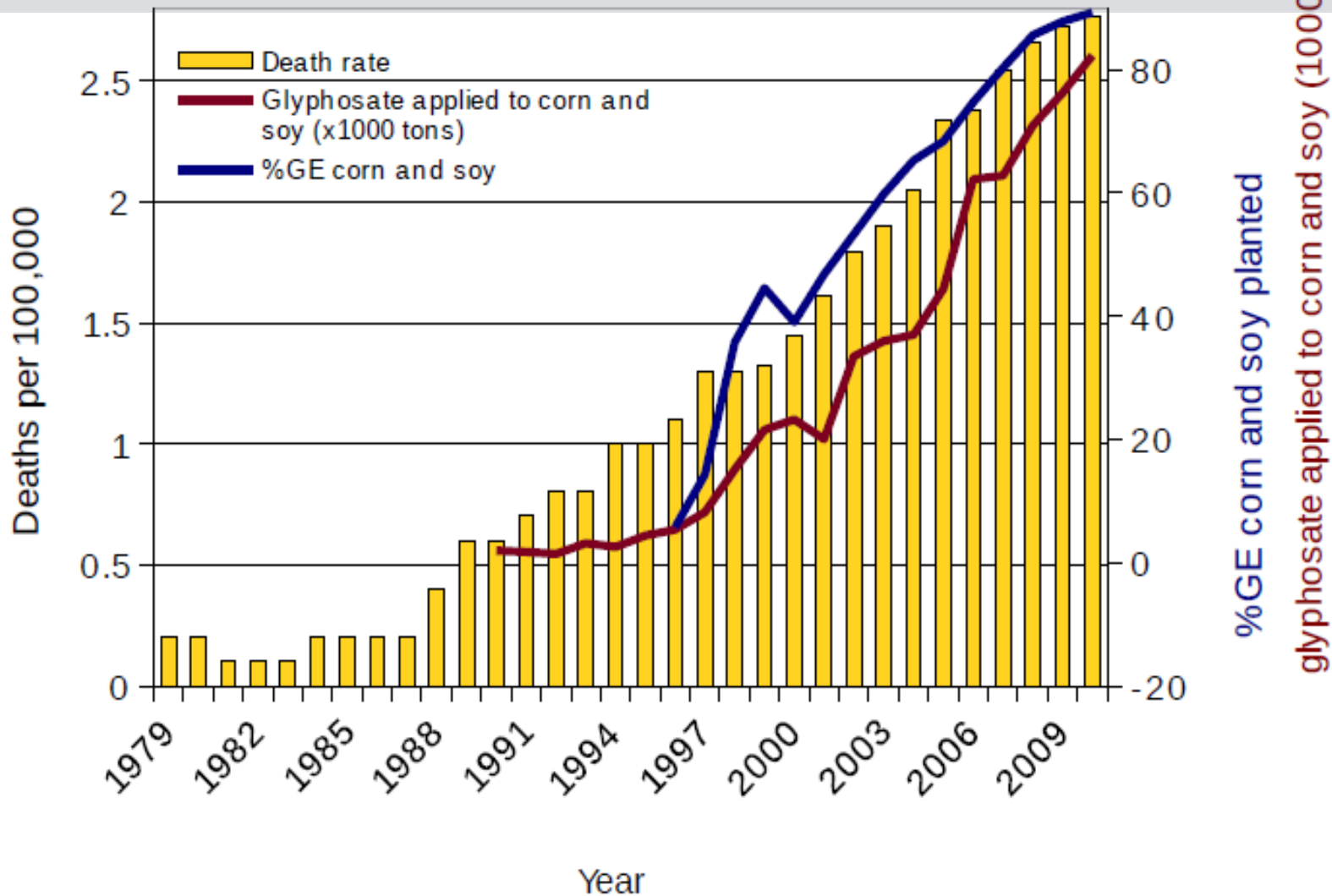
Plotted against %GE corn & soy  
( $R = 0.9618$ ,  $p \leq 3.504e-06$ ) &  
glyphosate applied to corn &  
soy ( $R = 0.9616$ ,  $p \leq 1.695e-08$ )



# Age Adjusted Deaths due to Disorders of Lipoprotein Metabolism (ICD E78.5 hyperlipoproteinemia & E78.0 hypercholesterolemia)

plotted against %GE corn & soy ( $R = 0.9549$ ,  $p \leq 4.694e-06$ )  
and glyphosate applied to corn & soy ( $R = 0.9734$ ,  $p \leq 7.886e-09$ )

Sources: USDA:NASS; CDC



Are Your Liver or  
Kidney Problems  
Caused by GMOs  
and Roundup?

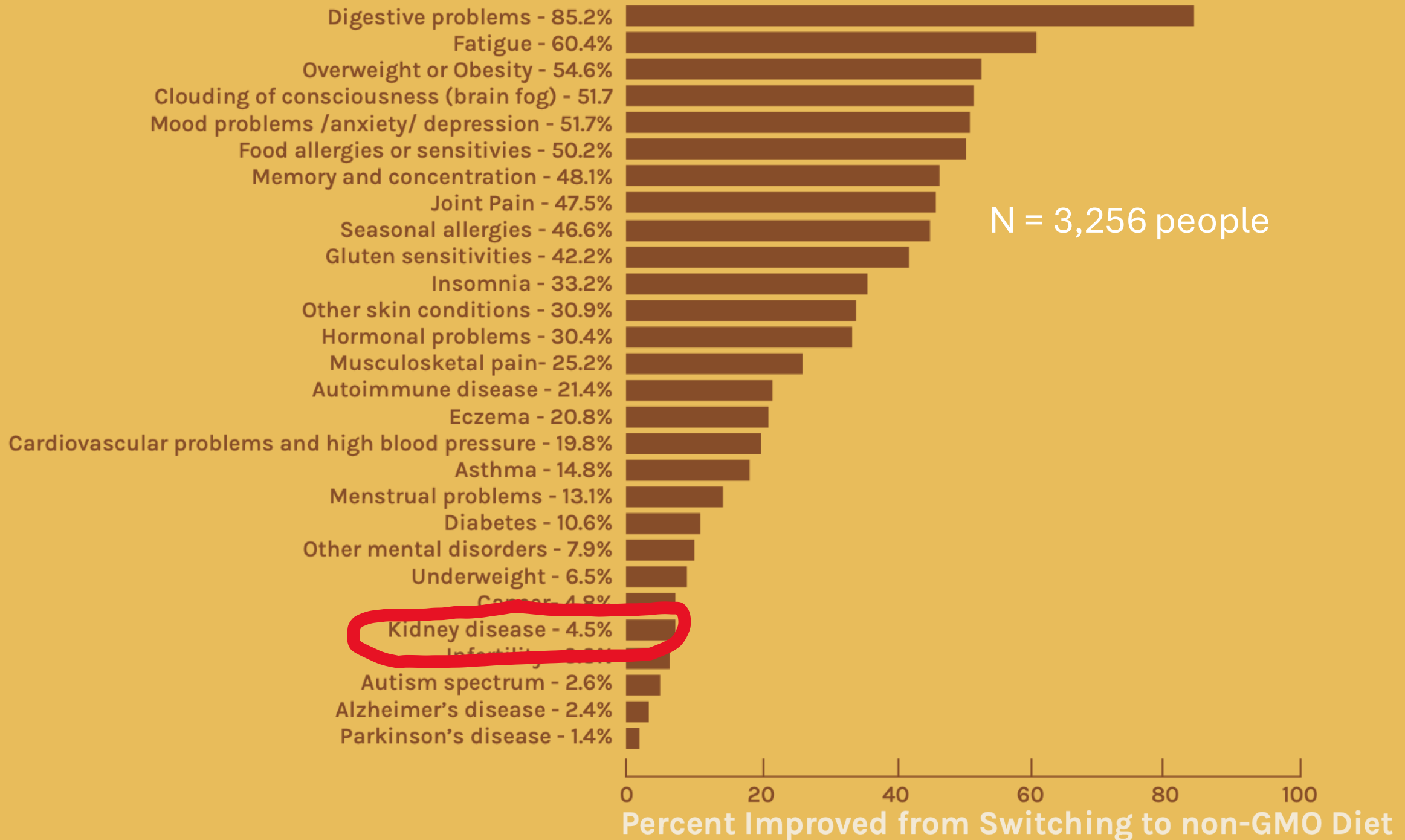
Kidney failure

Fatty liver disease

Hepatitis C

Liver cancer

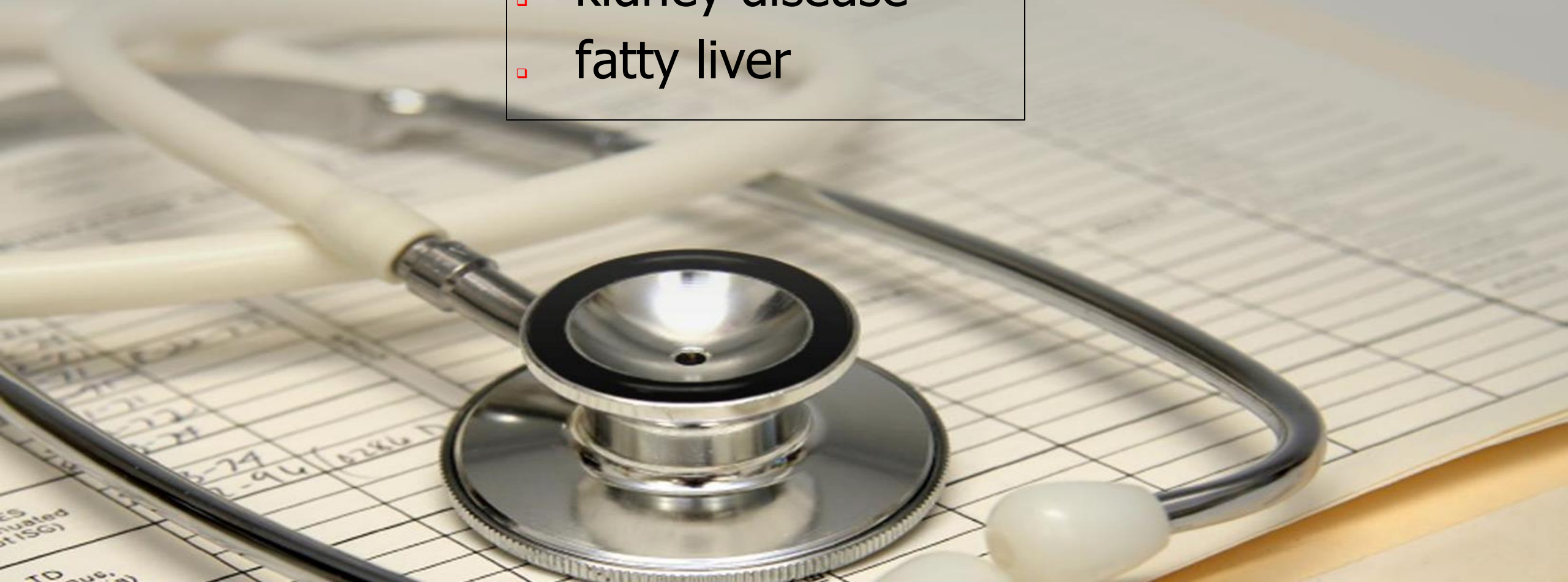
Kidney cancer



# *Improvements in People*

## Organ damage:

- kidney disease
- fatty liver



# Livestock



**Liver damage:**

**“The liver looked like a bomb went off.”**

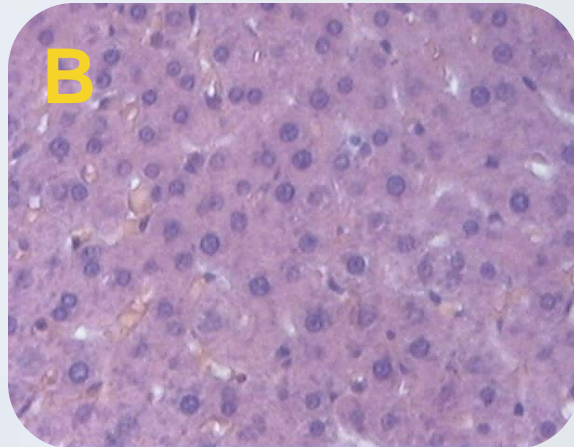
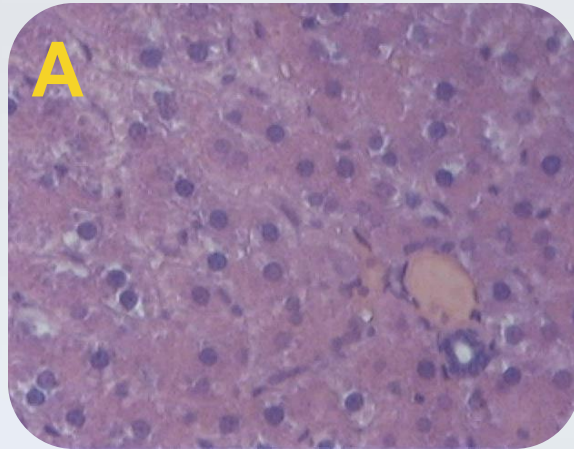




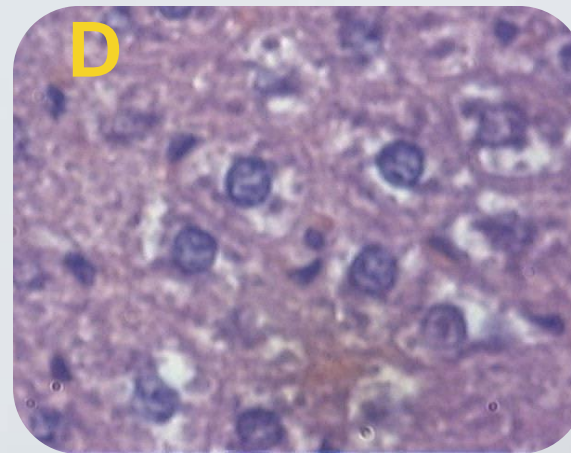
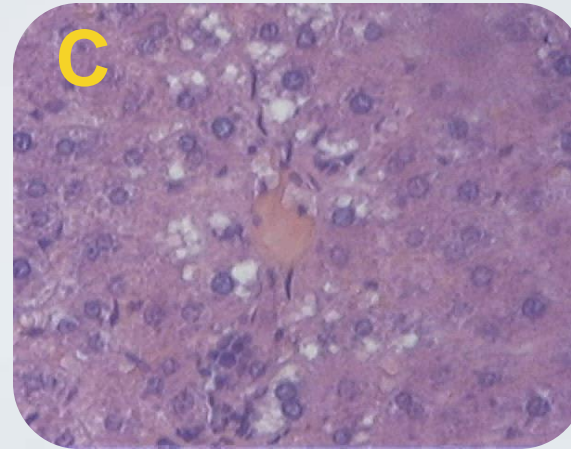


# Rat Livers

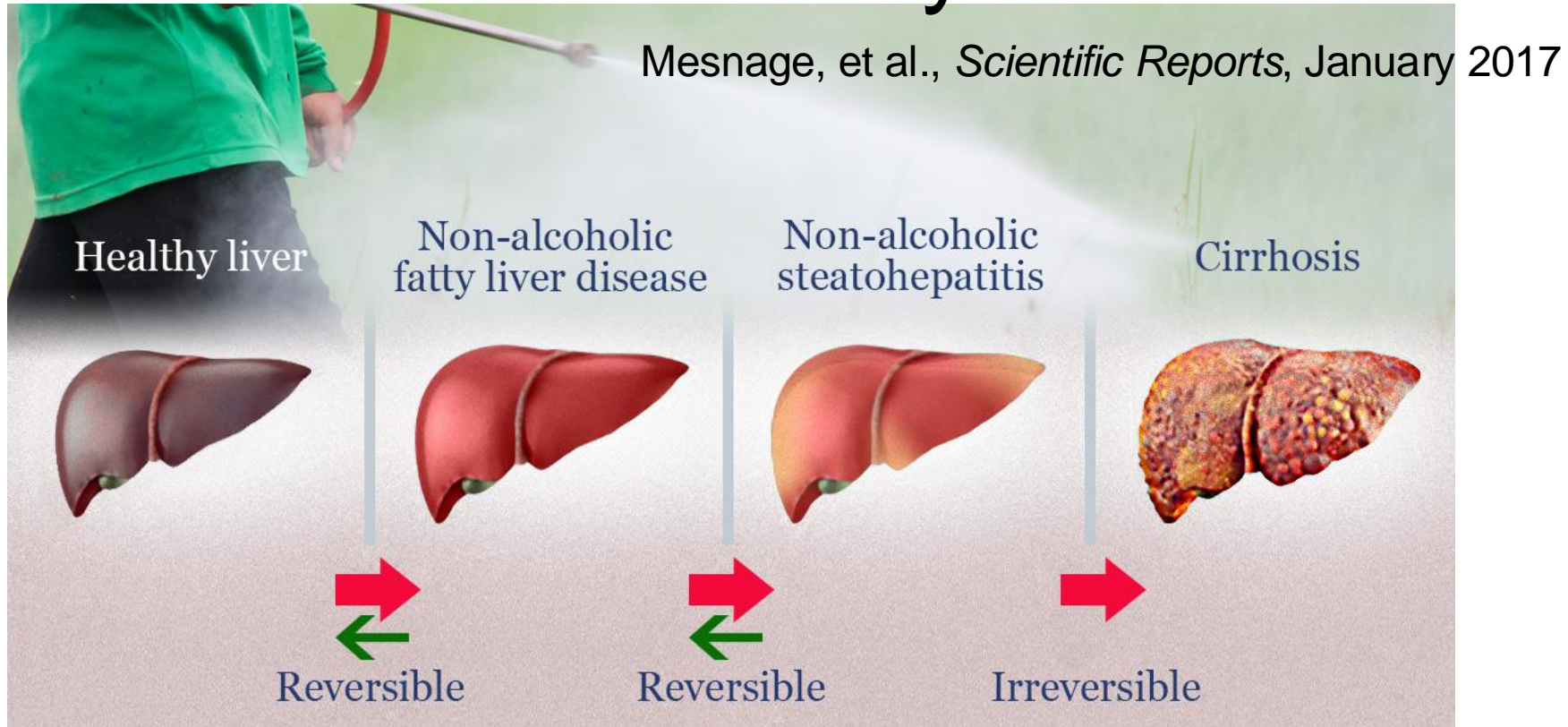
A, B – control group



C, D – GM-soy group



# Roundup causes non-alcoholic fatty liver disease at very low doses



NAFLD affects 25% of the US population. Symptoms include fatigue, weakness, weight loss, loss of appetite, nausea, abdominal pain, spider-like blood vessels, yellowing of the skin and eyes (jaundice), itching, fluid build-up and swelling of the legs and abdomen, and mental confusion. NAFLD can progress to the more serious, non-alcoholic steatohepatitis (NASH), which causes the liver to swell and become damaged. Up to 25% of adults with NASH may have cirrhosis.

# Number of Hospitalizations for Acute Kidney Injury

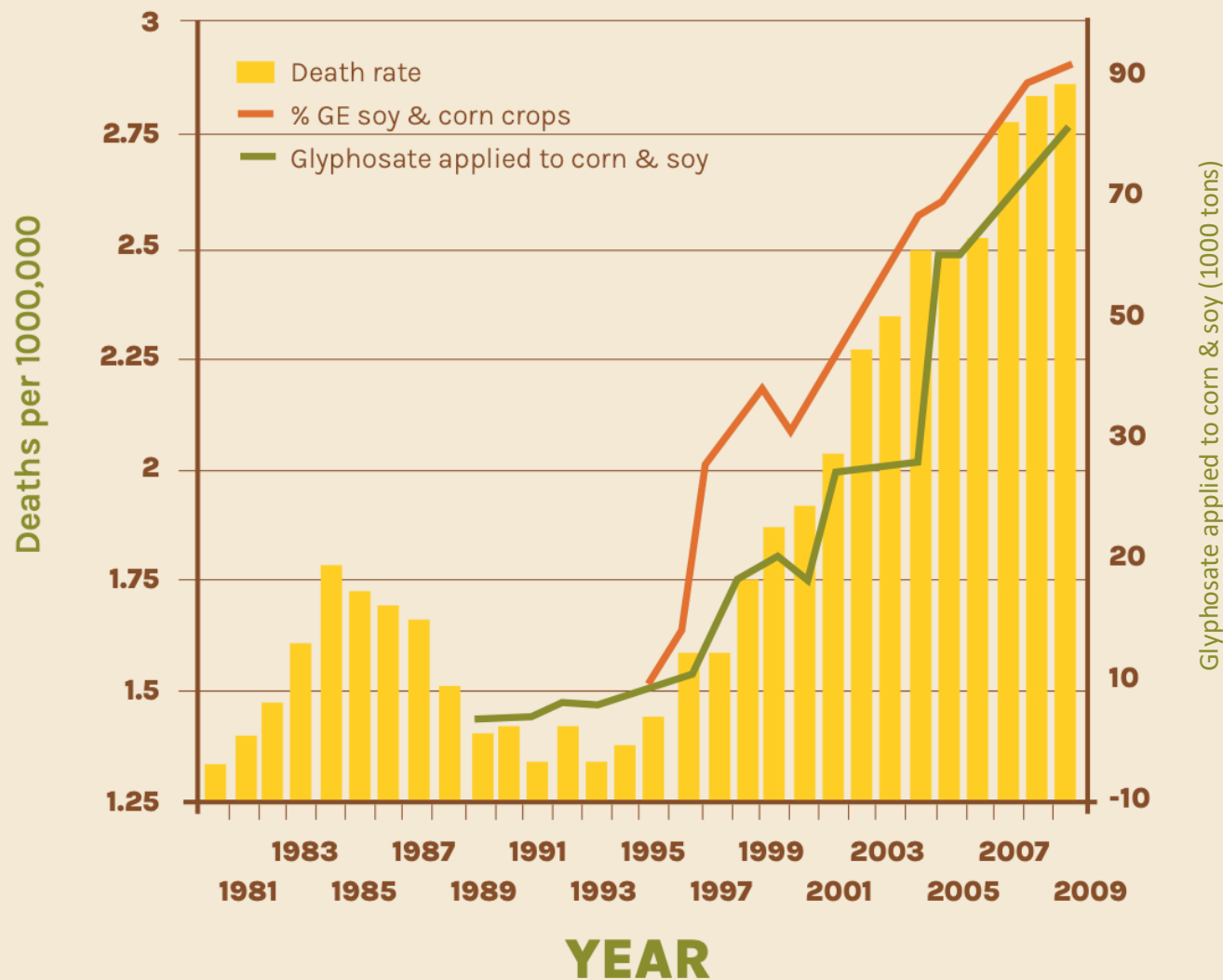
plotted against glyphosate applied to corn & soy (in 1000 tons)



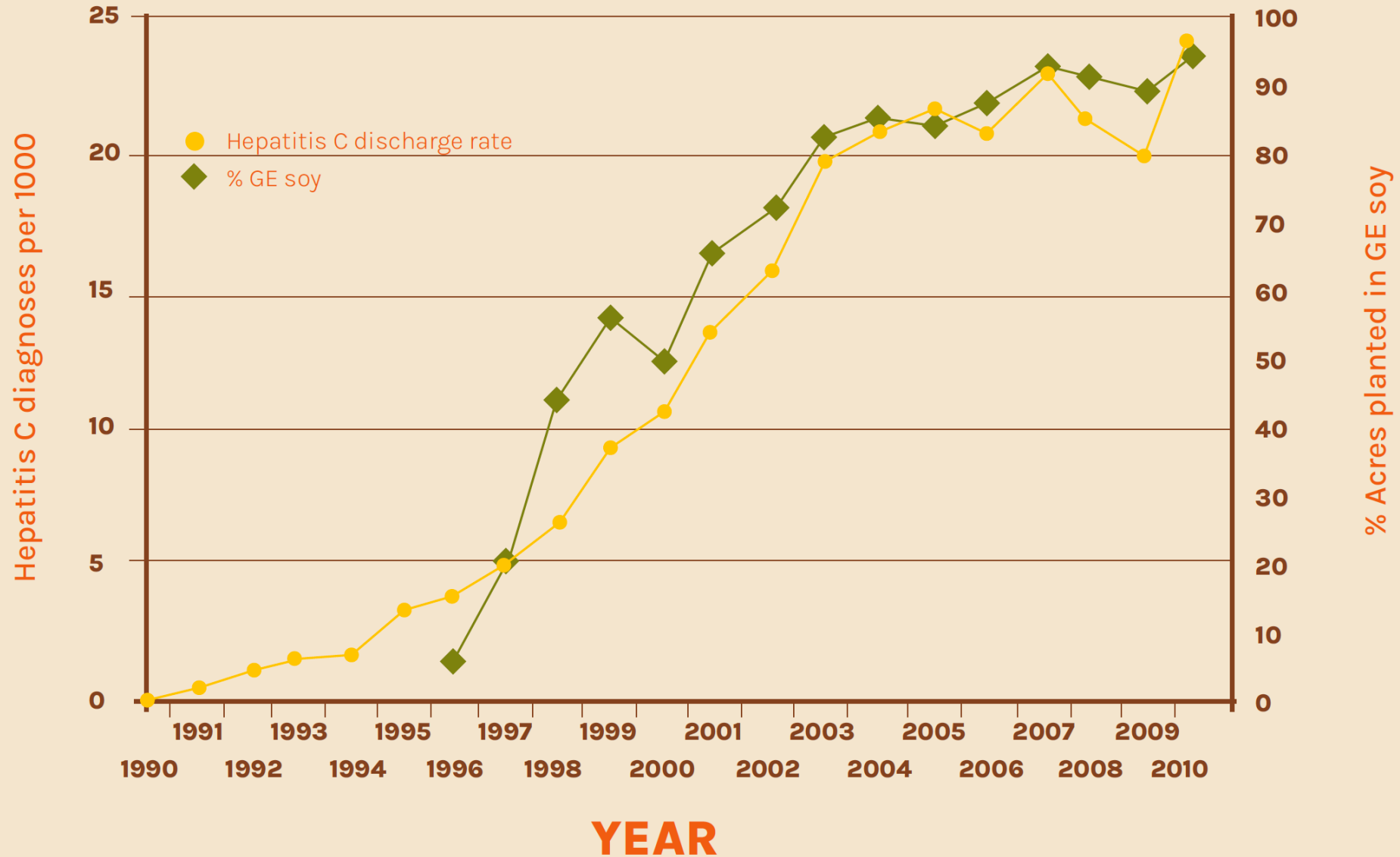
# Death from kidney failure

Age adjusted. Sources: USDA; NASS; CDC

Plotted against %GE corn and soy planted ( $R=0.9674$ ,  $p \leq 2.736e-06$ ) and glyphosate applied to corn and soy ( $R= 0.9775$ ,  $p \leq 5.953e-09$ )



## Hospital Discharge Diagnosis of Hepatitis C ICD 070.4-070.7 plotted against % acres planted in GE soy ( $R = 0.9456$ , $p \leq 6.914e-06$ )



Are GMOs and  
Roundup  
Contributing to  
Your Neurological  
Disorders?

Autism, ADHD, various processing disorders  
(sensory, auditory, visual)

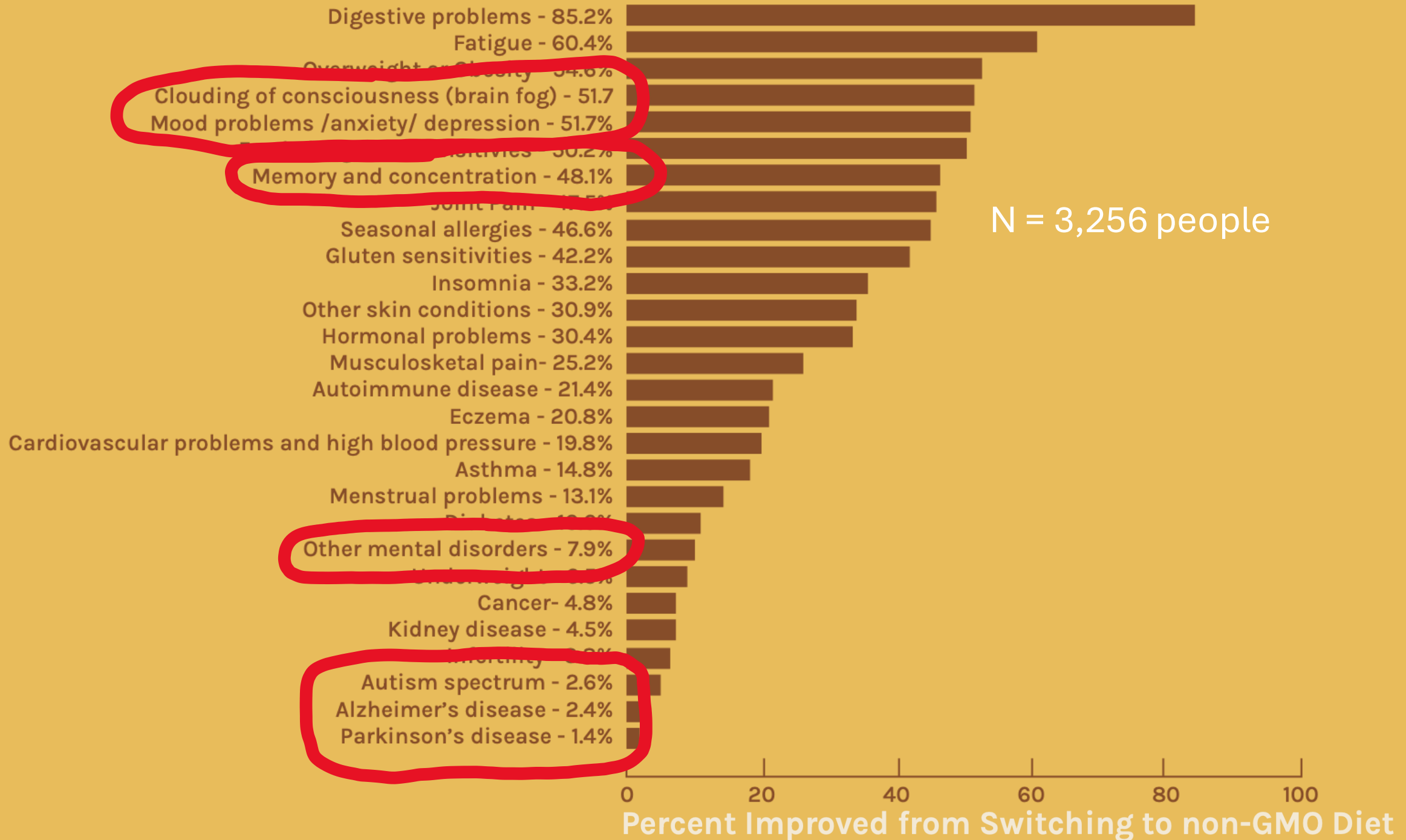
Alzheimers, Parkinson's, Dementia

Schizophrenia & other mental disorders

Brain fog

Mood/Anxiety/Depression/suicide

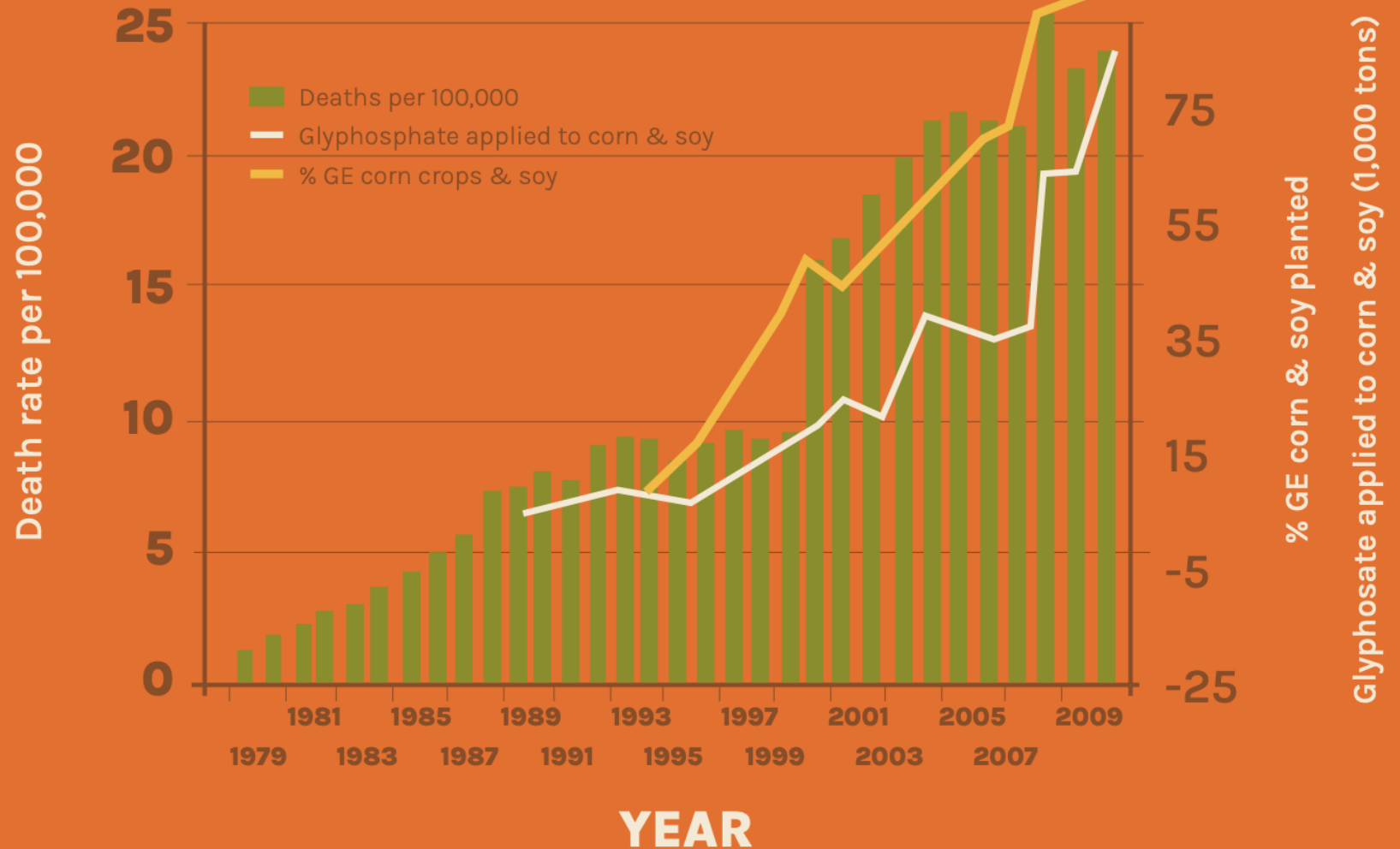
Memory/concentration



# Deaths from Alzheimer's

Age adjusted. Sources: USDA:NASS; CDC

Plotted against glyphosate use  
( $R = 0.917$ ,  $p \leq 2.205e-07$ ) &  
%GE crops planted ( $R = 0.9373$ ,  
 $p \leq 9.604e-06$ )

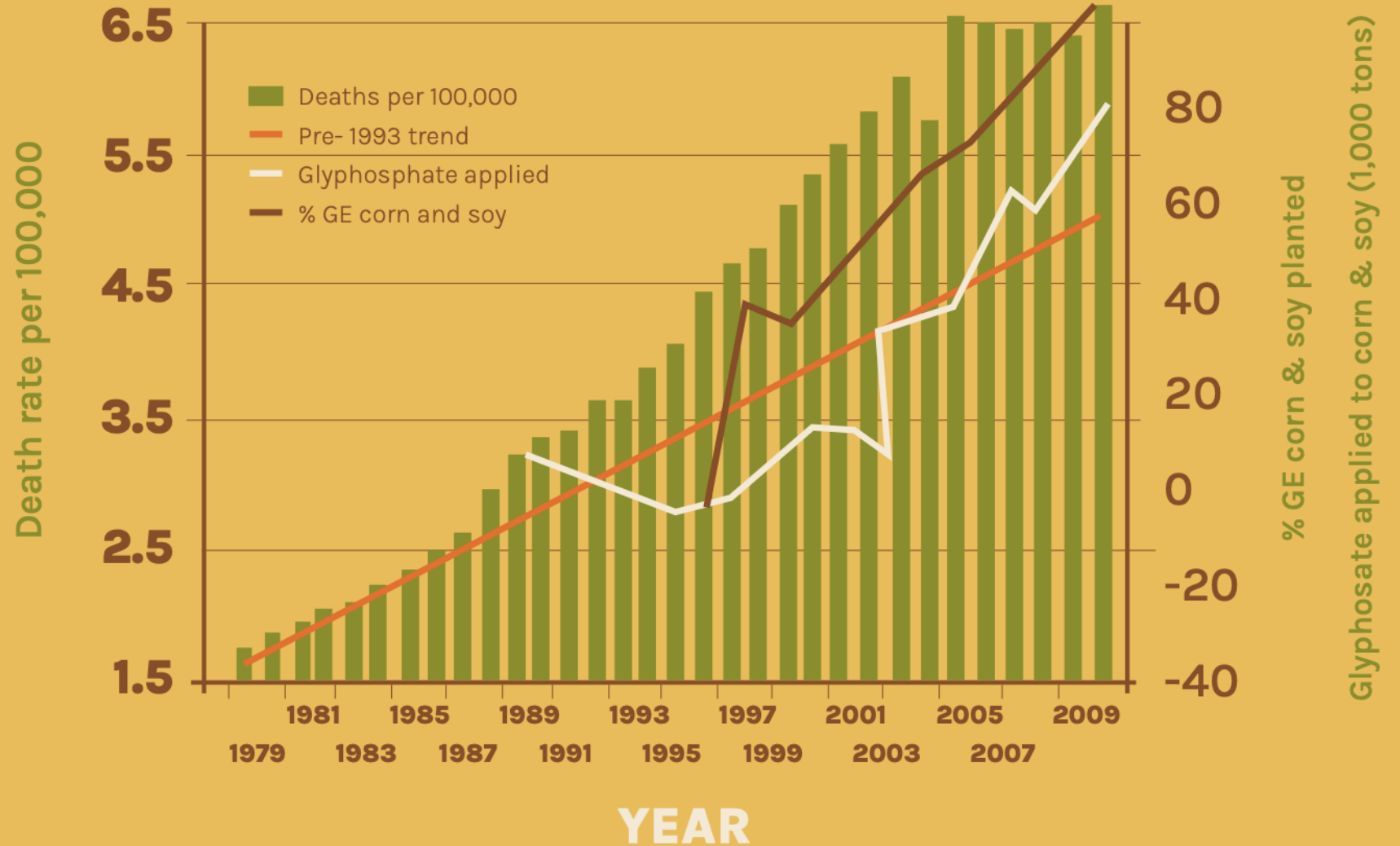




# Deaths from Parkinson's

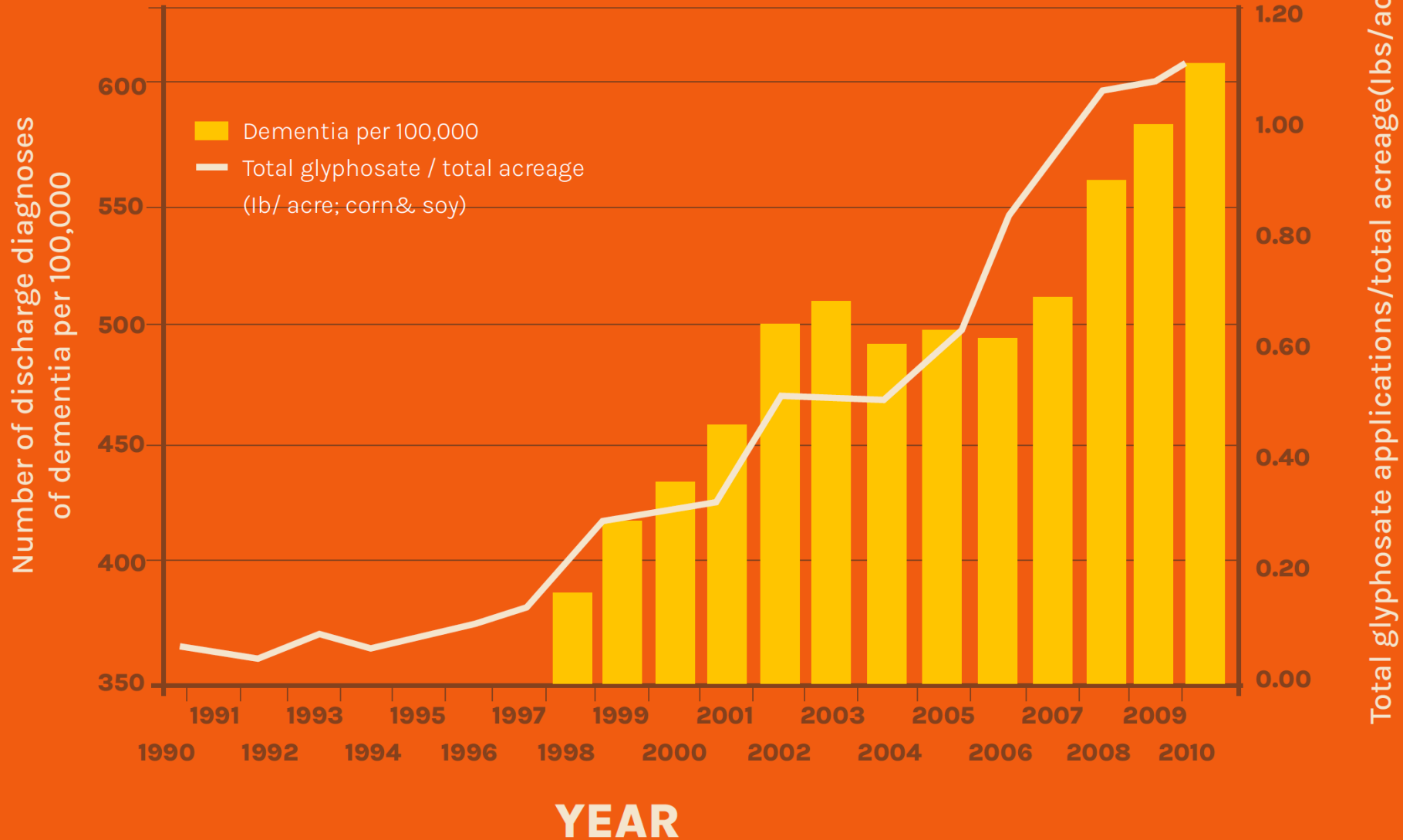
Age adjusted. Sources: CDC; USDA; NASS

Plotted against glyphosate use on corn & soy ( $R = 0.8754$ ,  $p \leq 1.631e-06$ ) & %GE crops planted ( $R = 0.9516$ ,  $p \leq 5.398e-06$ )



# Hospital Discharge Diagnoses of Dementia (ICD 290-294) & Glyphosate applications to corn & soy crops ( $R = 0.9325$ , $p \leq 5.817e-05$ )

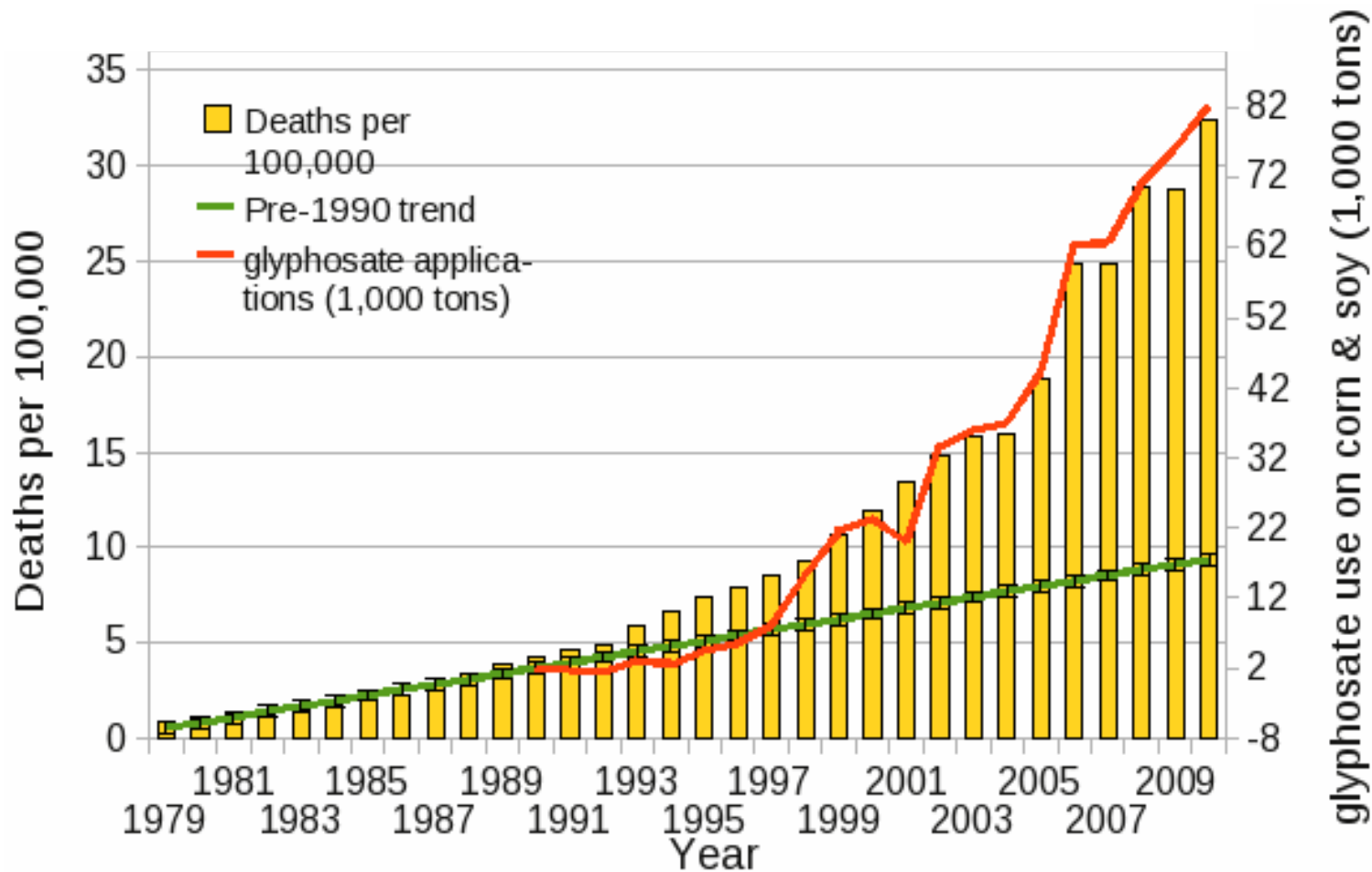
Sources: CDC; USDA



# Age adjusted Deaths from Senile Dementia (ICD F01, F03 & 290)

plotted against glyphosate applications on corn & soy ( $R = 0.9942$ ,  $p \leq 1.822e-09$ )

Sources: USDA:NASS; CDC

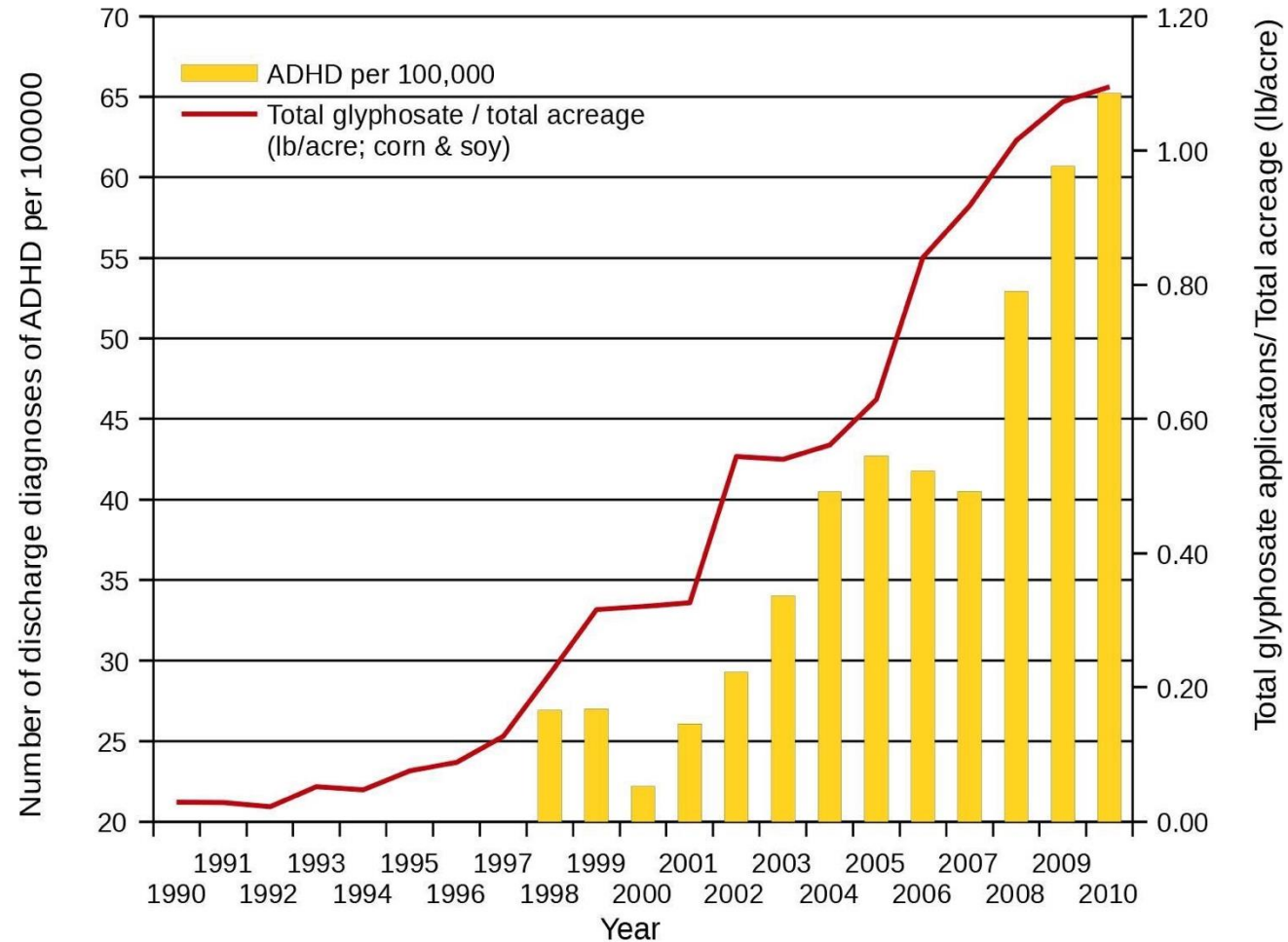


# Hospital Discharge Diagnoses of ADHD (ICD 314.00-01)

& Glyphosate applied to corn & soy crops

$R = 0.9466$ ,  $p \leq 3.632e-05$

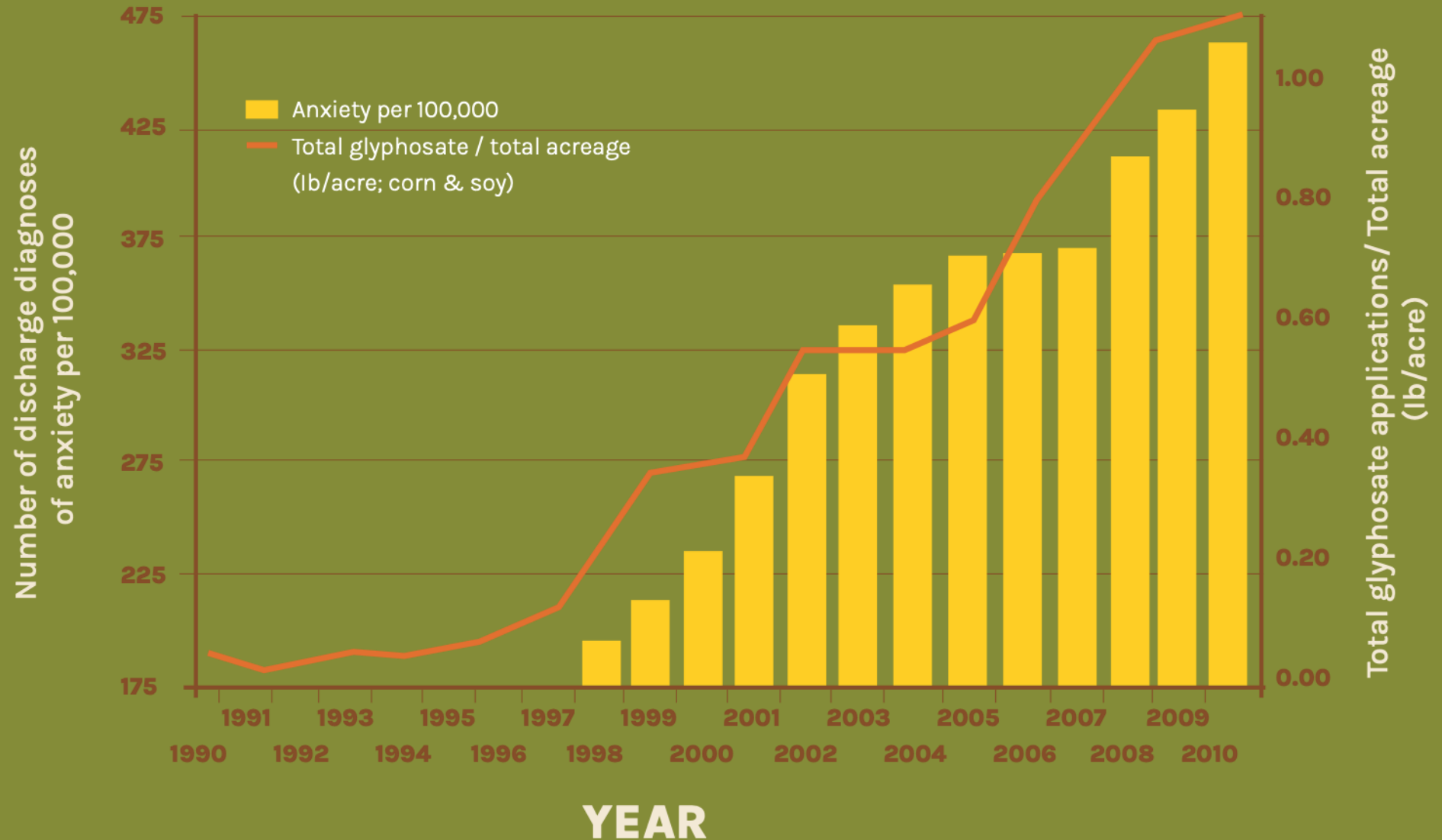
Sources: CDC; USDA



# Anxiety

Hospital discharge. Sources: CDC; USDA

Glyphosate applied to  
corn & soy crops  
 $R = 0.95, p \leq 3.231e-05$

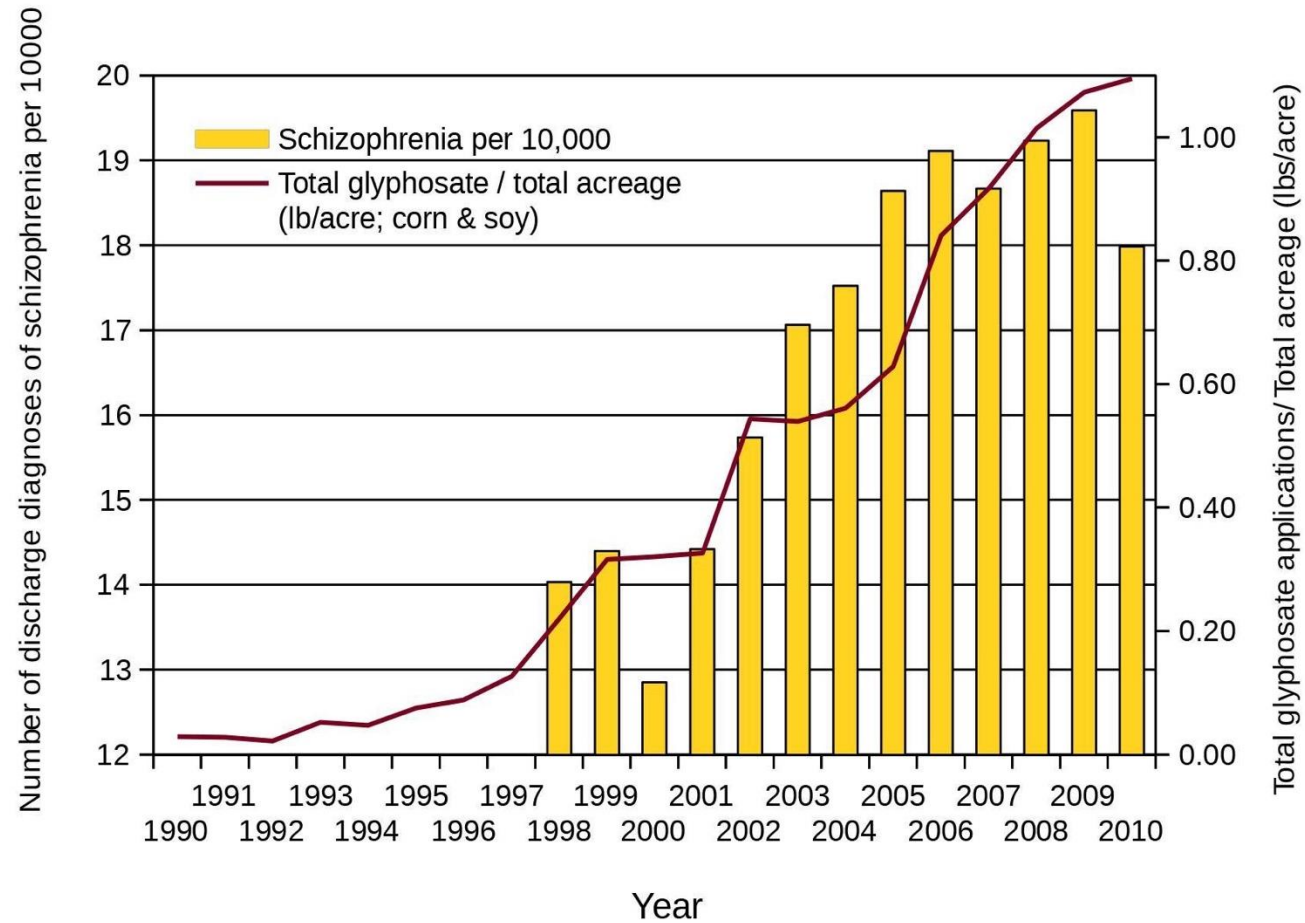


# Hospital Discharge Diagnoses of Schizophrenia (ICD 295)

& Glyphosate applied to corn & soy crops

$R = 0.883$ ,  $p \leq 0.00025$

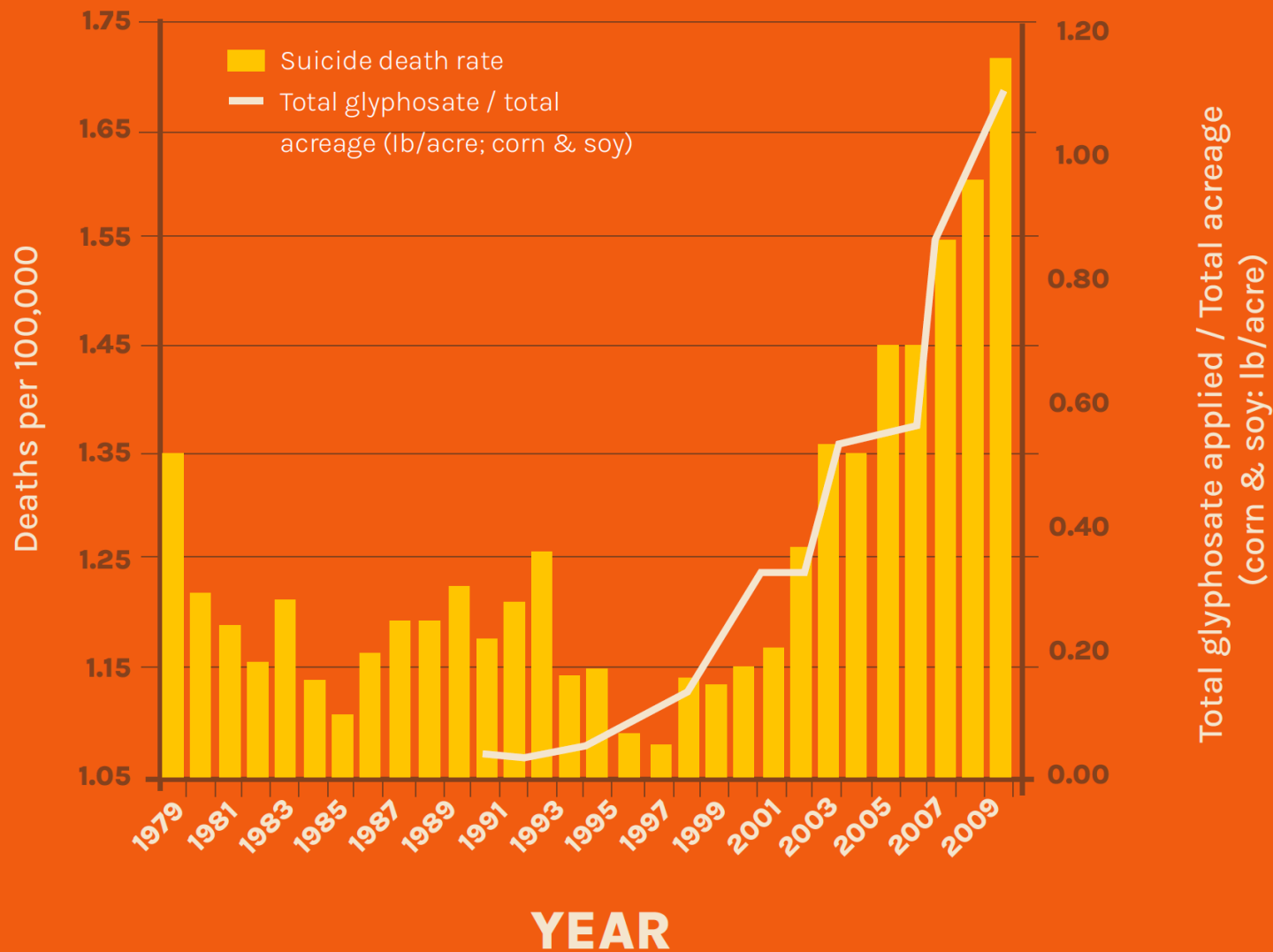
Sources: CDC; USDA



# Suicide by Overdose

Sources: CDC, USDA

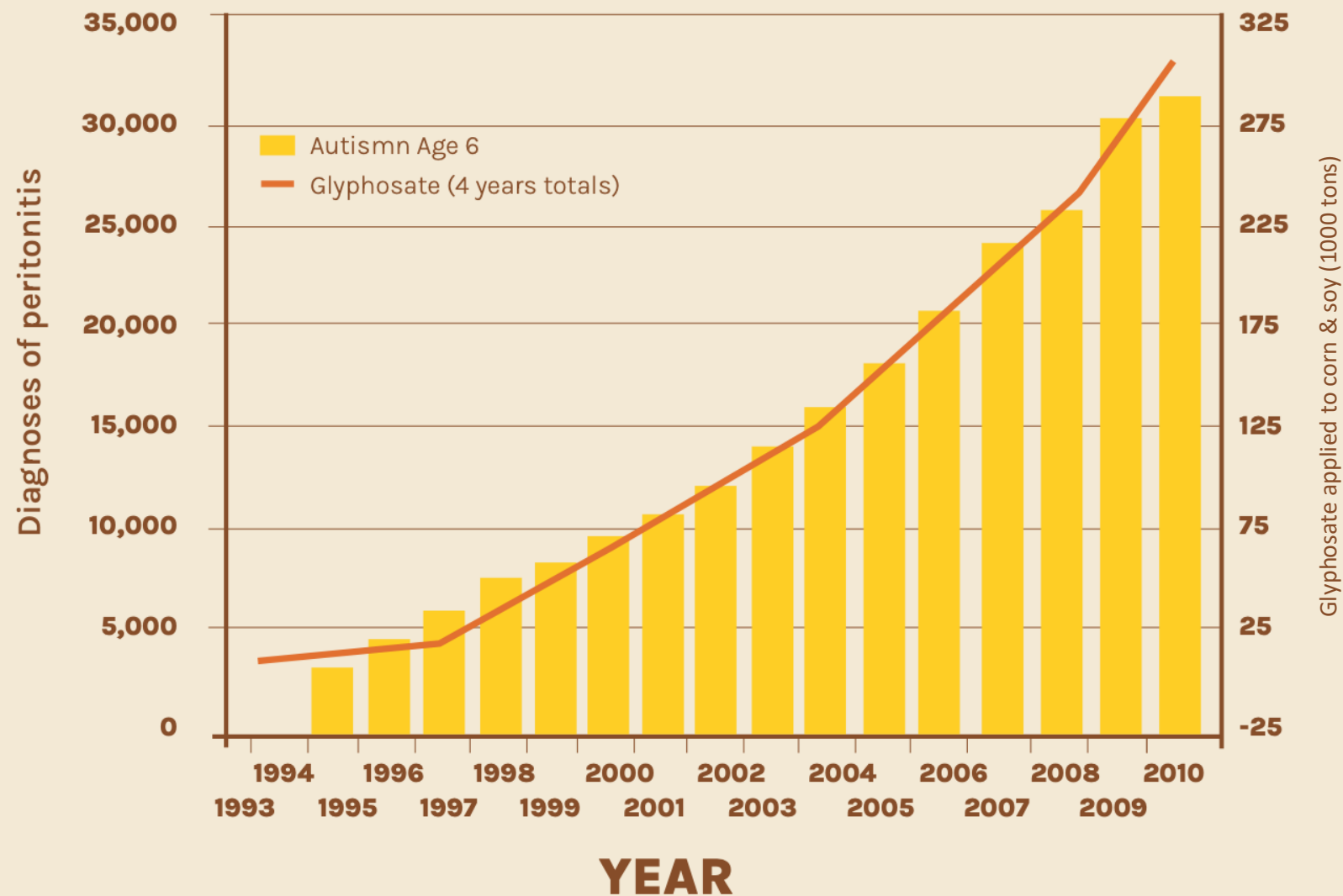
R = .9524



# Autism in 6 yr-olds

Prevalence. Sources: USDE; USDA

Glyphosate is total of year indicated + 3 previous years  $R=00.9972$ ,  $p \leq 2.366e-07$





**SECRET  
INGREDIENTS**

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"AMY HART AND PAUL GOODSON" "AMY HART AND MARK SMITH" "DONNA DE LORY AND BEN LEINBACH"  
"JEFFREY SMITH AND AMY HART" "AMY HART AND JEFFREY SMITH"

WINNER  
SPECIAL AWARDS  
OFFICIAL  
SPECIAL AWARDS  
WINNER  
SPECIAL AWARDS

SecretIngredientsMovie.com

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[SecretIngredientsFilm.com](http://SecretIngredientsFilm.com)

Are Your  
Reproductive  
Disorders  
Caused by GMOs  
and Roundup?

Birth defects

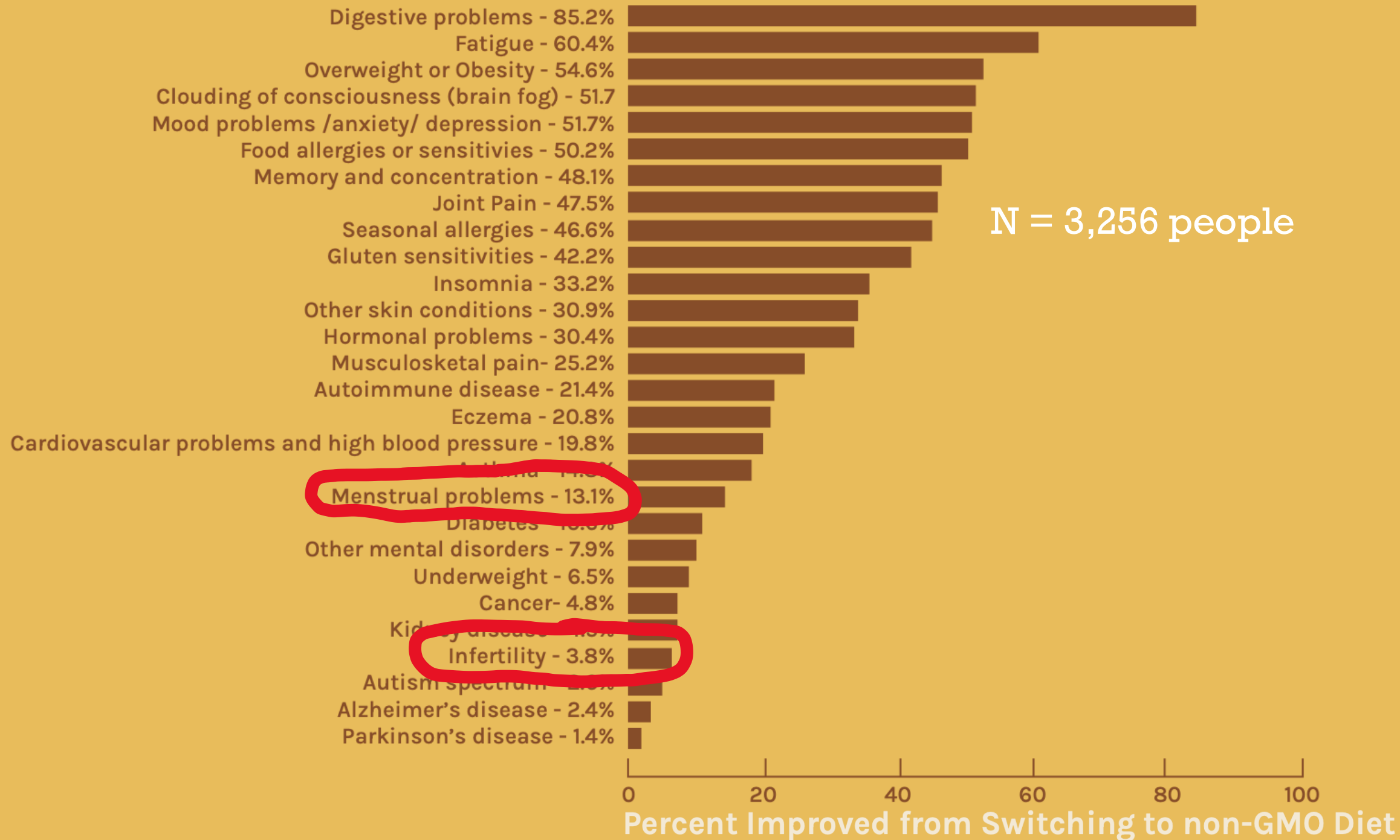
Menstrual problems

Infertility

PCOS (polycystic ovary syndrome)

Low sperm count and low sperm motility

Premature birth, low birth rate



# Livestock



## **Reproductive:**

- birth defects
- infertility

- miscarriages
- conception rate
- litter size



# *Animal Feeding Studies*

## Reproductive:

- ❖ infertility
- ❖ birth defects
- ❖ high infant mortality
- ❖ changes in the uterus ovaries, and testes
- ❖ abnormal sperm
- ❖ sex hormones
- ❖ embryos had temporary decrease in gene expression
- ❖ lower birth weight
- ❖ maternal mortality

# **Glyphosate:** Promotes birth defects

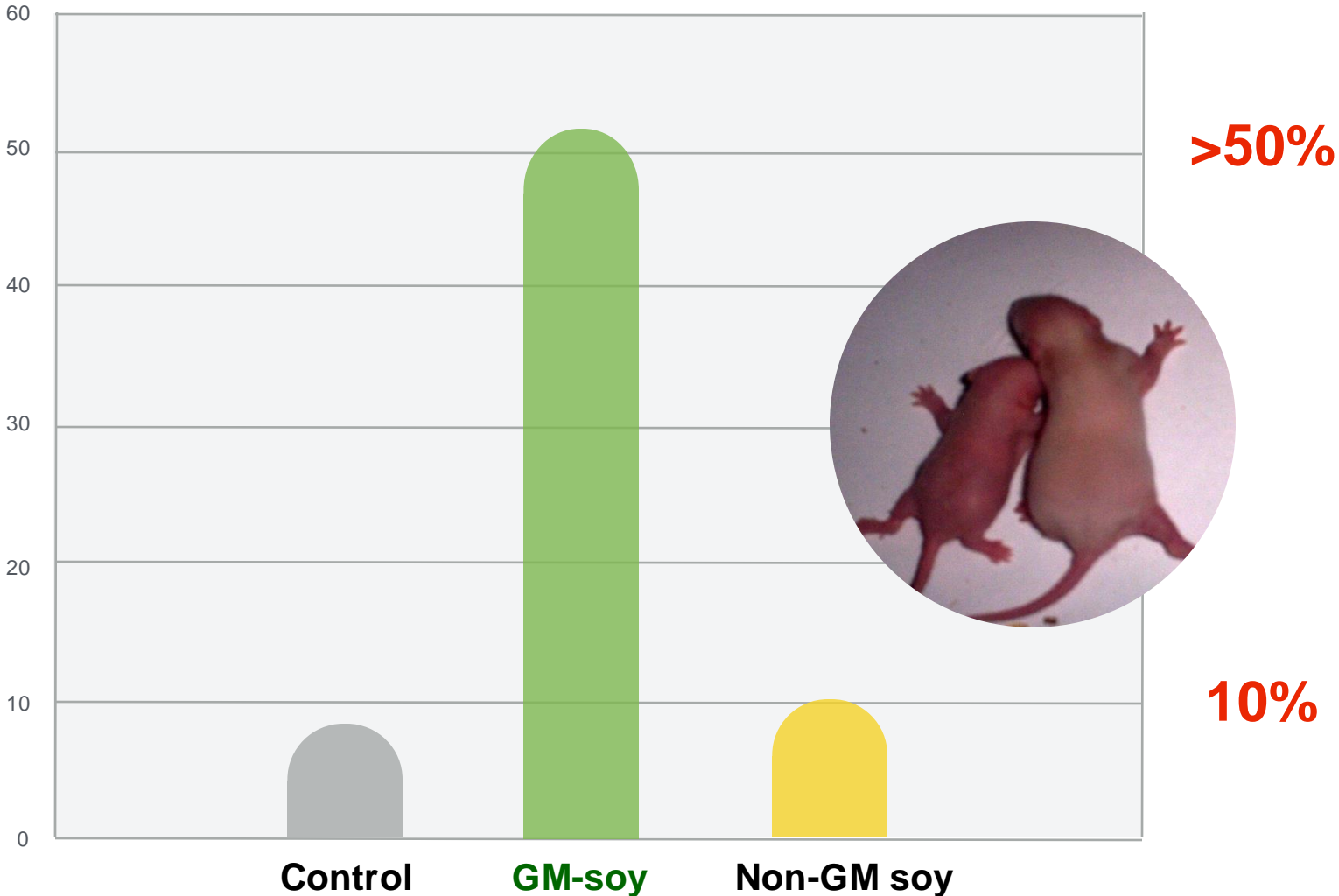




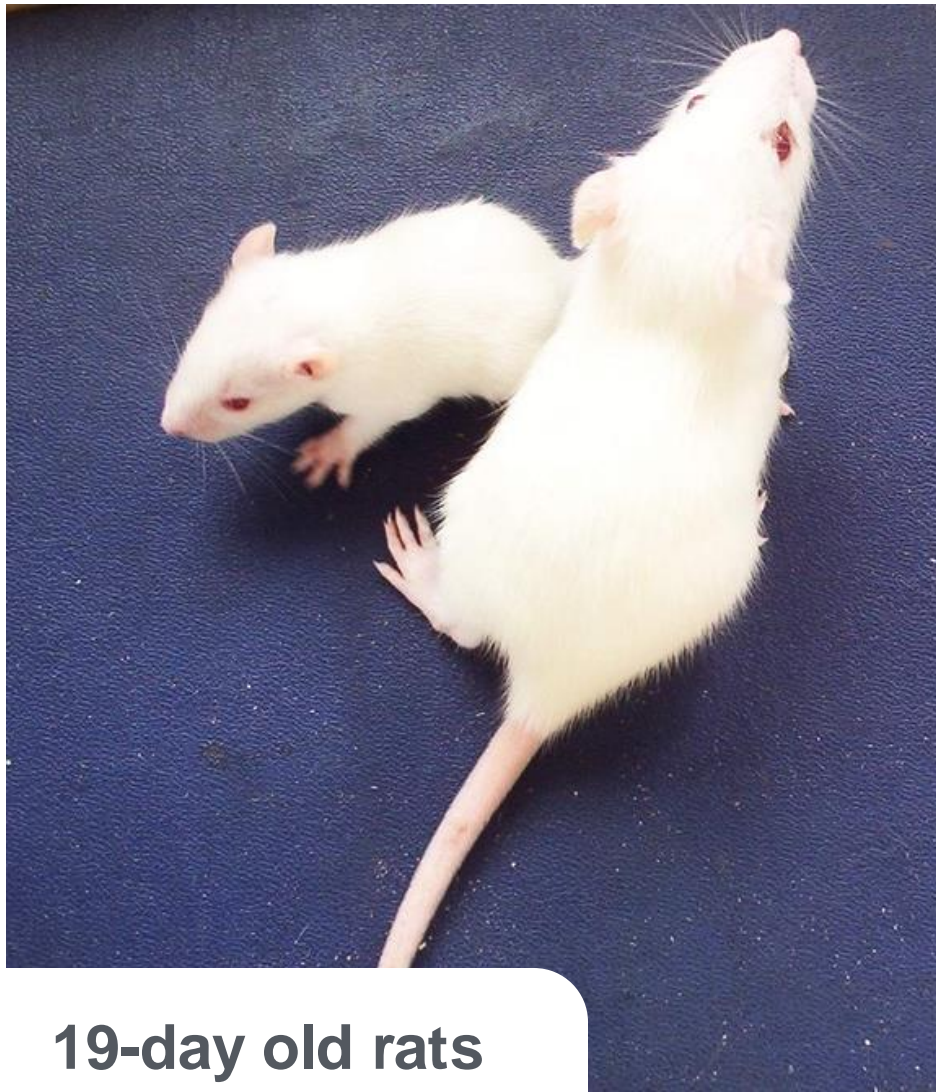
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No 2

# Death of baby rats

## Mortality of rat pups







19-day old rats



Larger rat is from control group  
**smaller from GM-soy group.**

# Hamsters fed GM soy for two years

By the third generation, most lost the ability to have babies. They also suffered slower growth, a 4-5X increase in infant mortality rate, and some had hair growing in their mouths.



## Mice fed GM soy

Testicular cells had  
altered  
structure and function

**Eur. J. of Histochemistry, '04**



## Rats fed GM soy

Changes in Uterus  
and ovaries

**Anatomical Record '09**



# Rat Testicles

Control



GM soy fed



Control



GM-soy



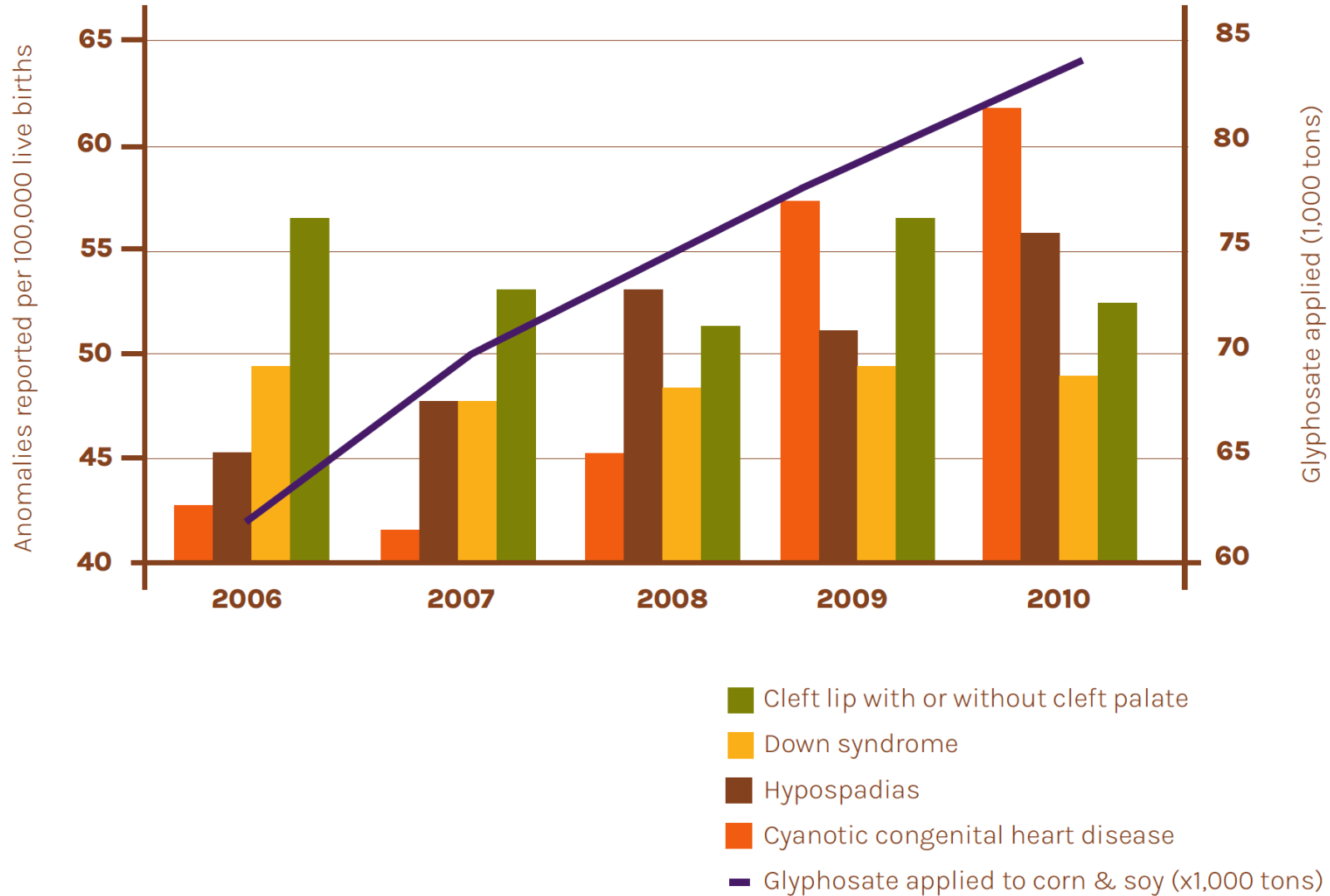
INVESTIGATIONS

# WSU study finds Roundup increases chances of health issues in future generations

—  
The grandchildren and great-grandchildren of rats exposed to the pesticide showed increased risks of issues such as kidney disease and birth defects.



**Congenital Birth Defects (U.S.)**  
**Plotted against glyphosate applied to corn & soy crops**  
**Data Sources: CDC; USDA**



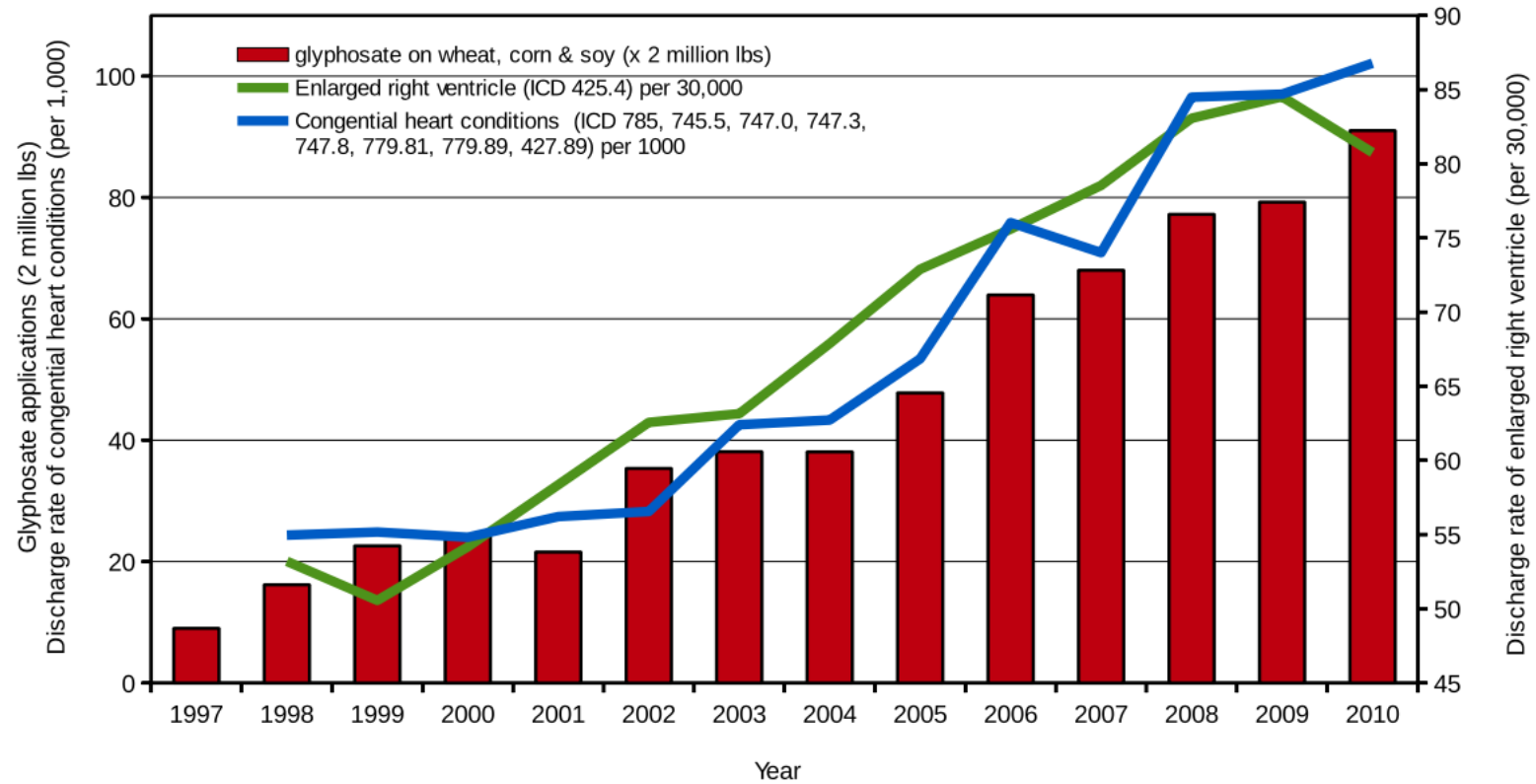
# Congenital Heart Defect, Newborns

(R = 0.933, p <= 9.224e-06)

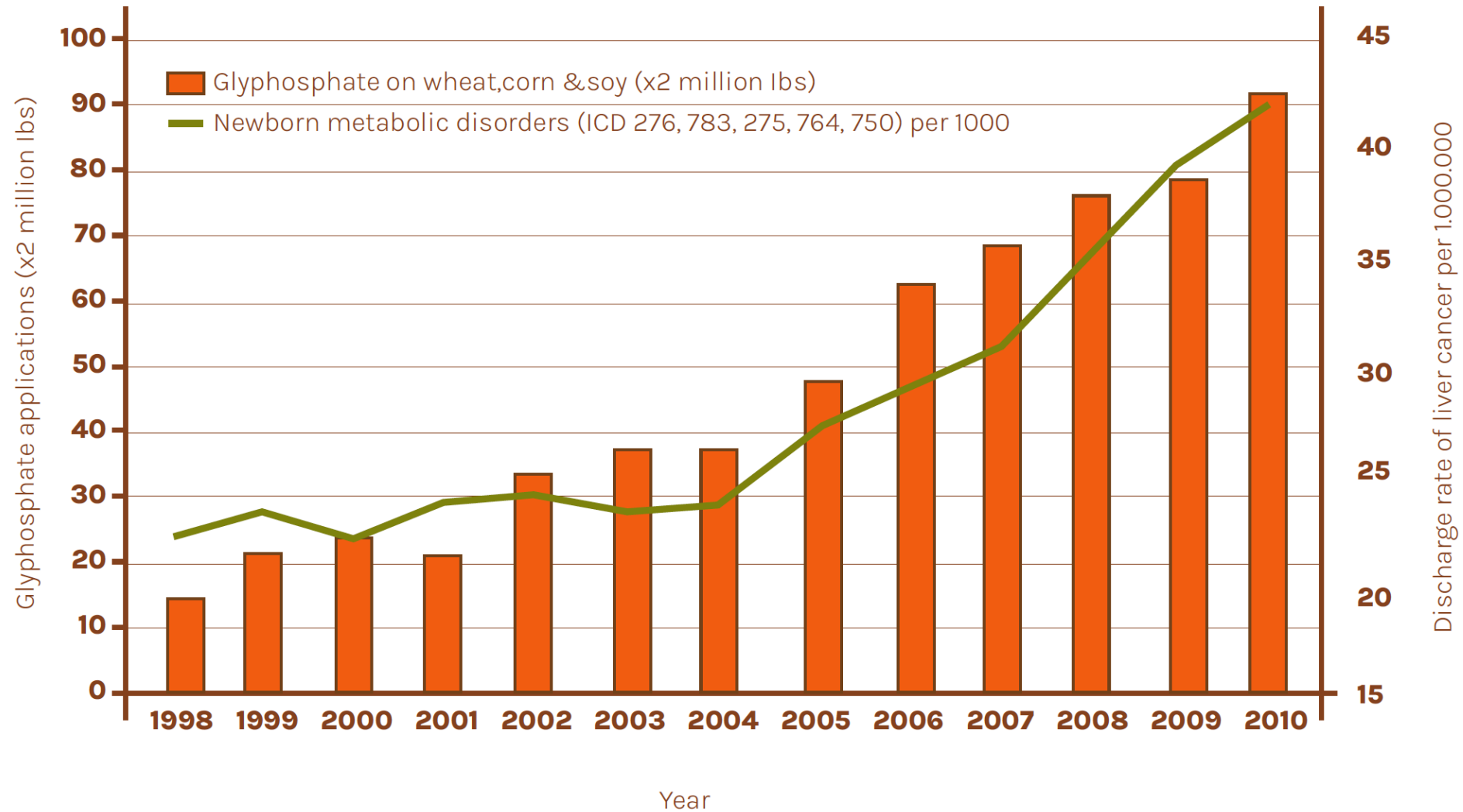
# Enlarged Right Ventricle (all ages except newborn)

(R = 0.9551, p <= 2.695e-05)

& glyphosate applications to wheat, corn & soy crops



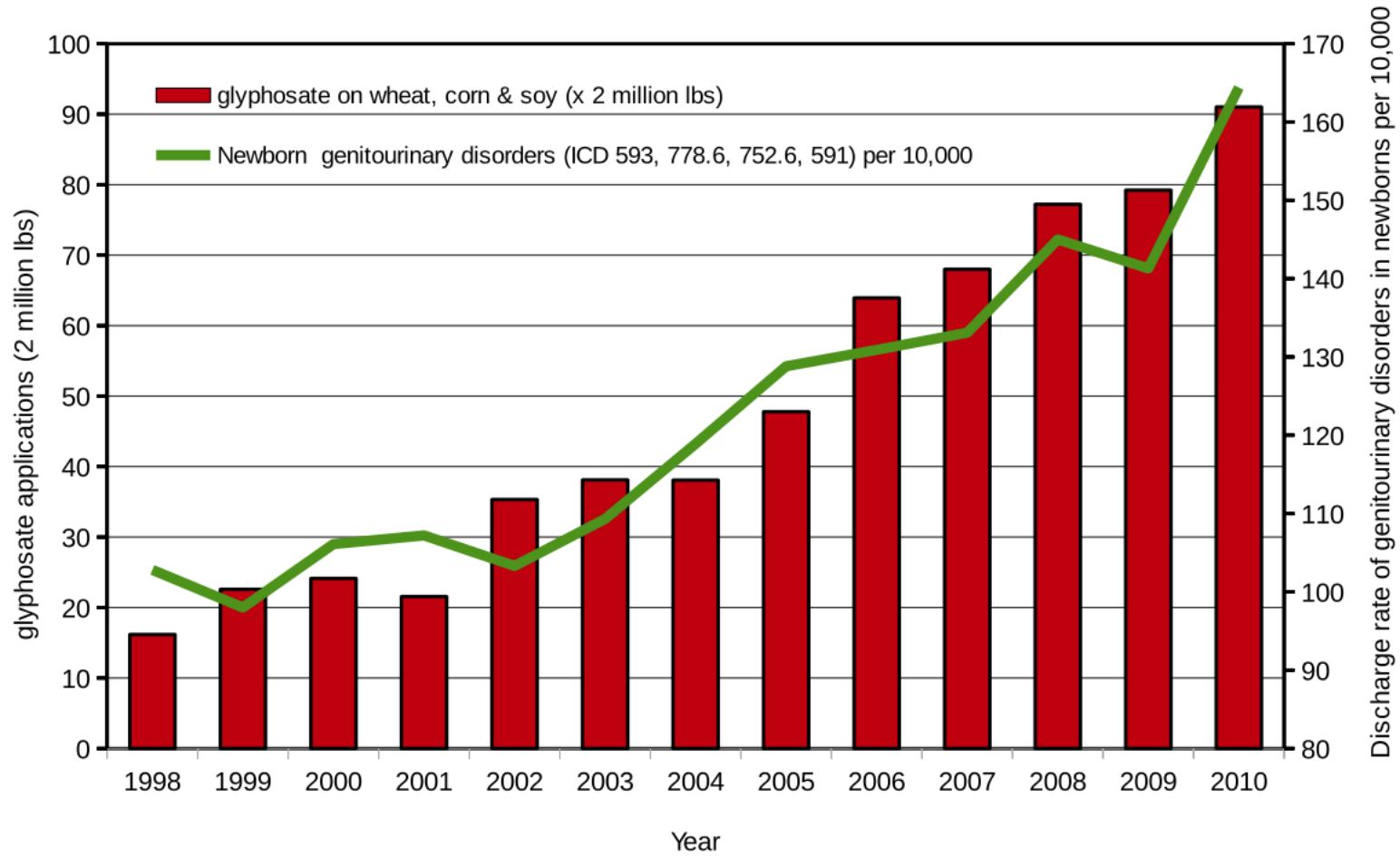
## Newborn metabolic disorders ( $R=0.949$ , $p \leq 3.34e-05$ ) and glyphosate applied to wheat, corn and soy crops





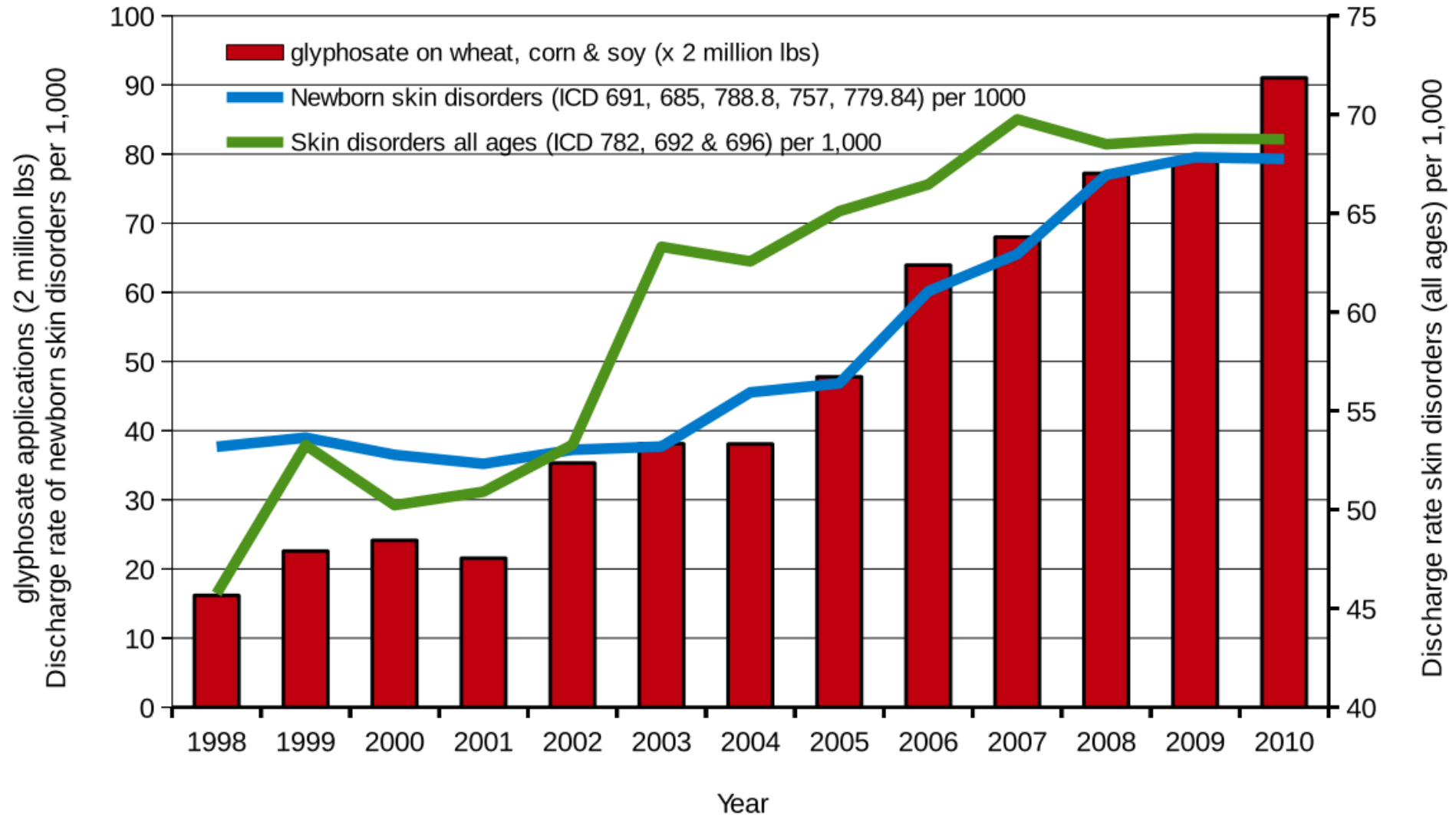
Newborn genitourinary disorders ( $R = 0.9585$ ,  $p \leq 2.392e-05$ )

& glyphosate applications to wheat, corn and soy crops



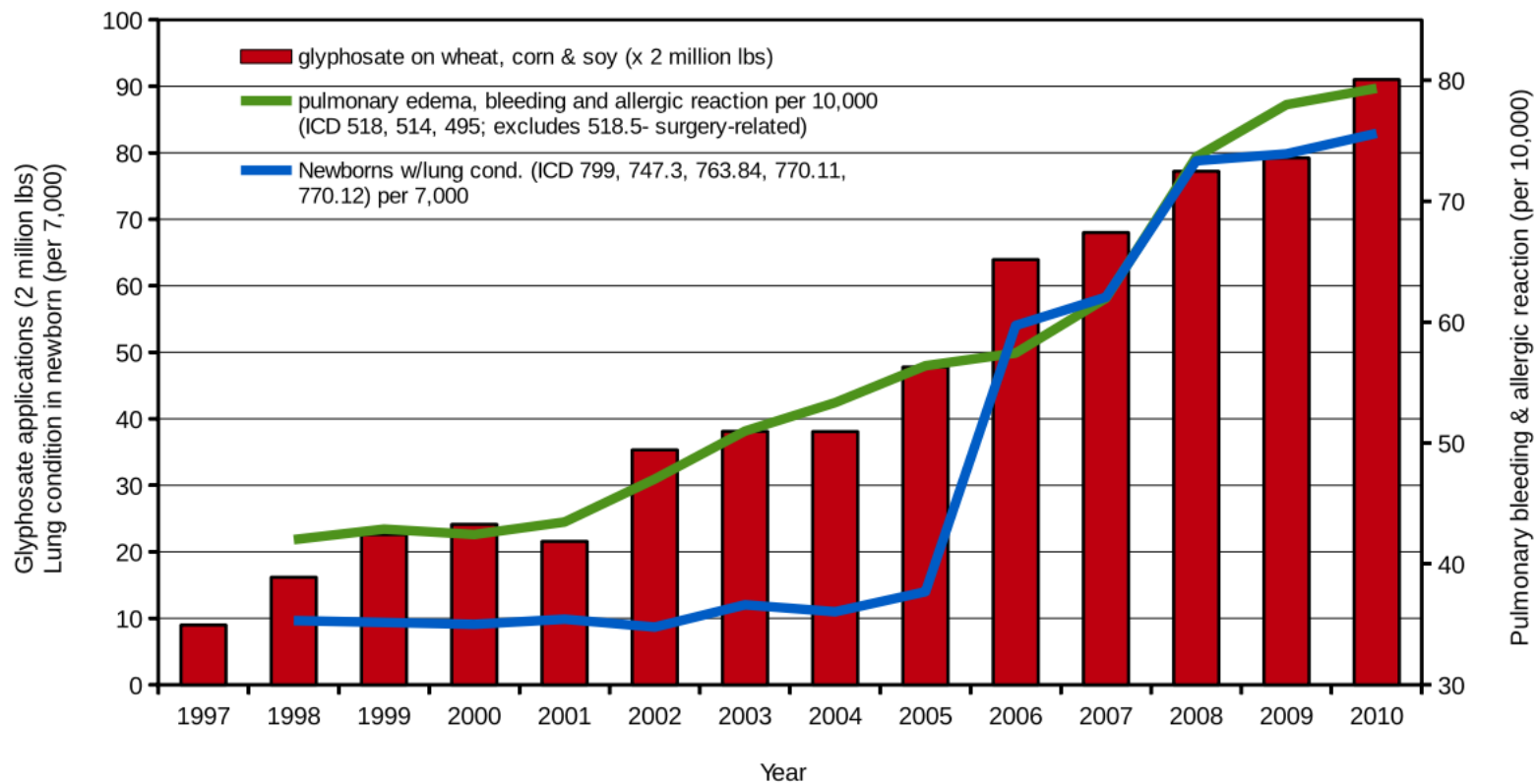
Skin disorders all ages except newborn ( $R = 0.8993$ ,  $p \leq 0.0001587$ )  
 Newborn skin disorders ( $R = 0.9634$ ,  $p \leq 1.994e-05$ )

& glyphosate applied to wheat, corn and soy crops



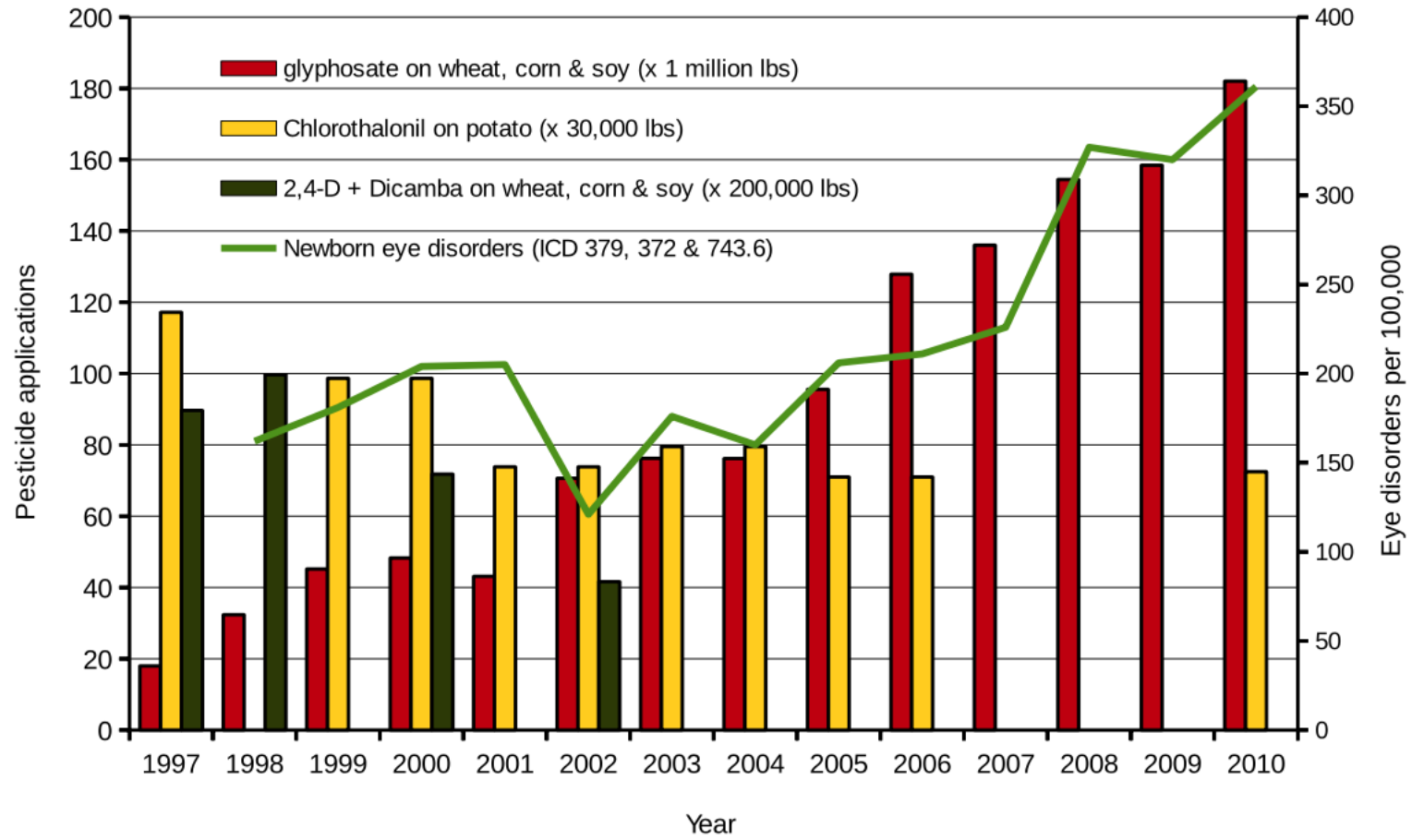
Newborns with lung condition ( $R = 0.9491$ ,  $p \leq 3.339e-05$ )  
 Pulmonary bleeding & allergic reaction (all ages except newborn) ( $R = 0.9705$ ,  $p \leq 1.53e-05$ )

& glyphosate applications to wheat, corn and soy crops



## Newborn eye disorders

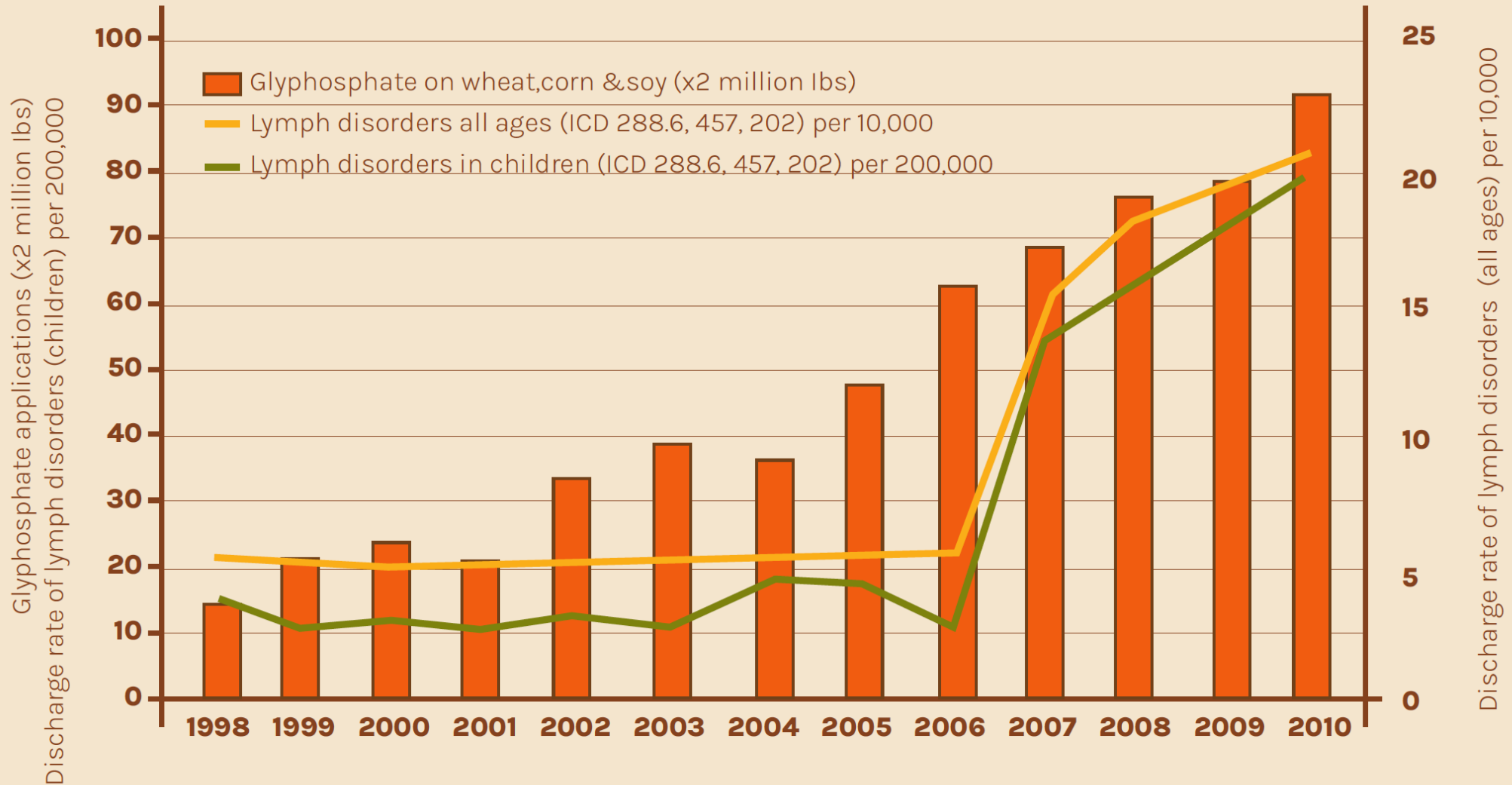
& pesticide applications to corn, soy, wheat & potato



# Immune-related newborn blood disorders ( $R=0.9216$ , $p \leq 8.204e-05$ ) and glyphosate applied to wheat, corn and soy crops



**Lymph disorders (All ages except newborn) ( $R=0.8854$ ,  $p\leq 0.0002329$ )**  
**Children 0-15 yrs with lymph disorder ( $R=0.8612$ ,  $p\leq 0.0004335$ )**



Not to Mention

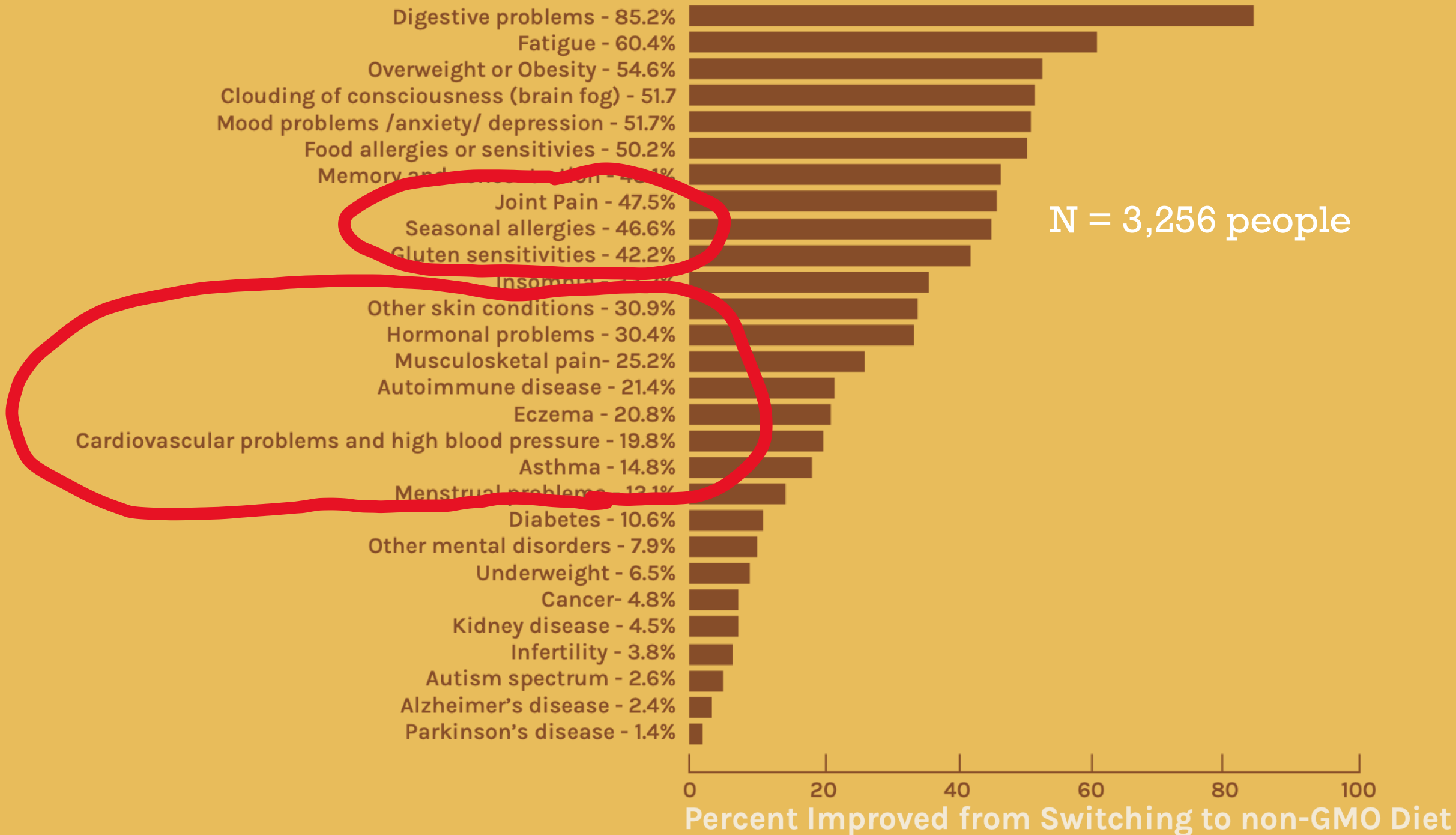
Hypertension

Stroke

Anemia

Skin disorders

Autoimmune conditions, etc.

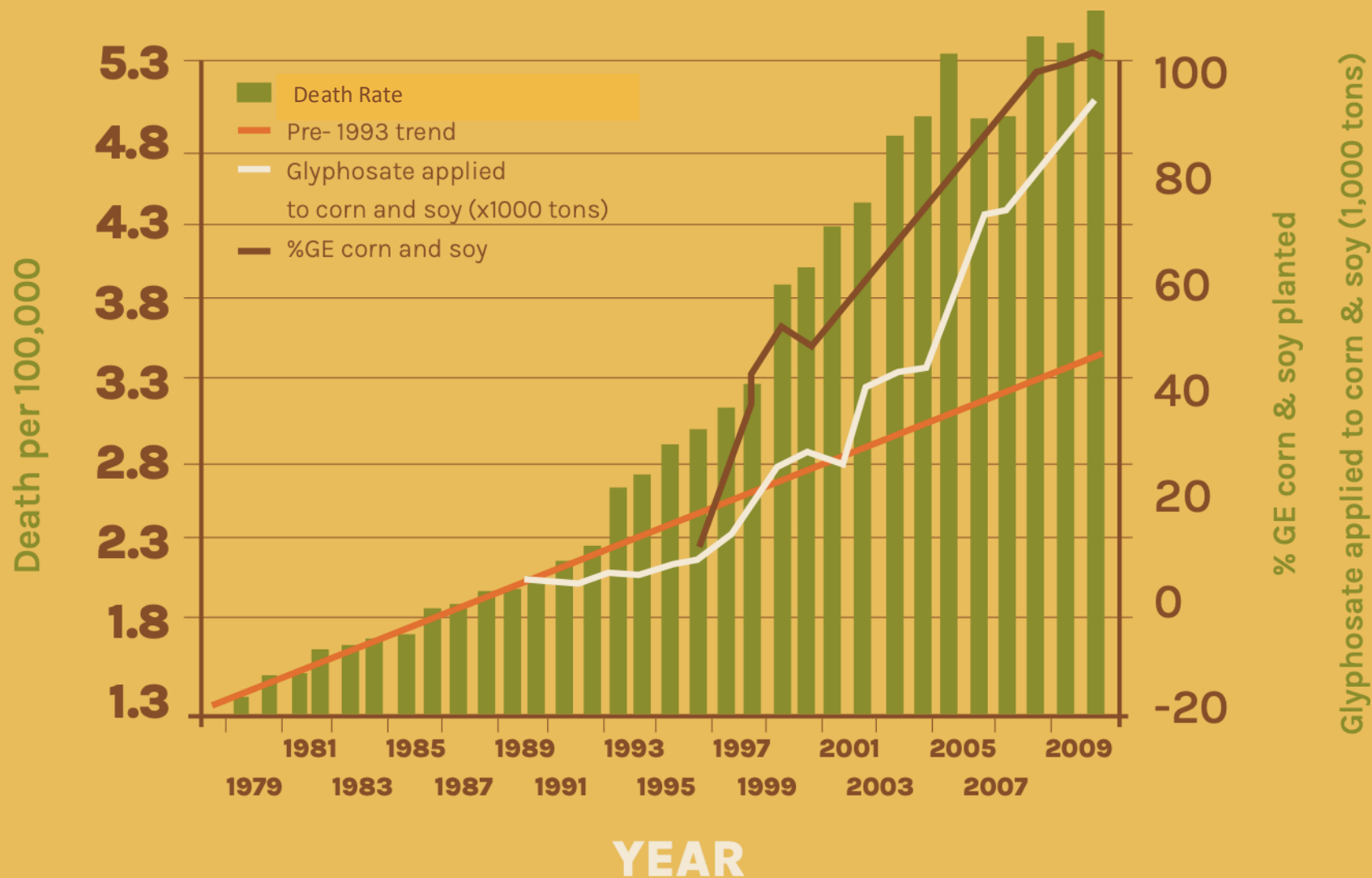




# Deaths from Hypertension

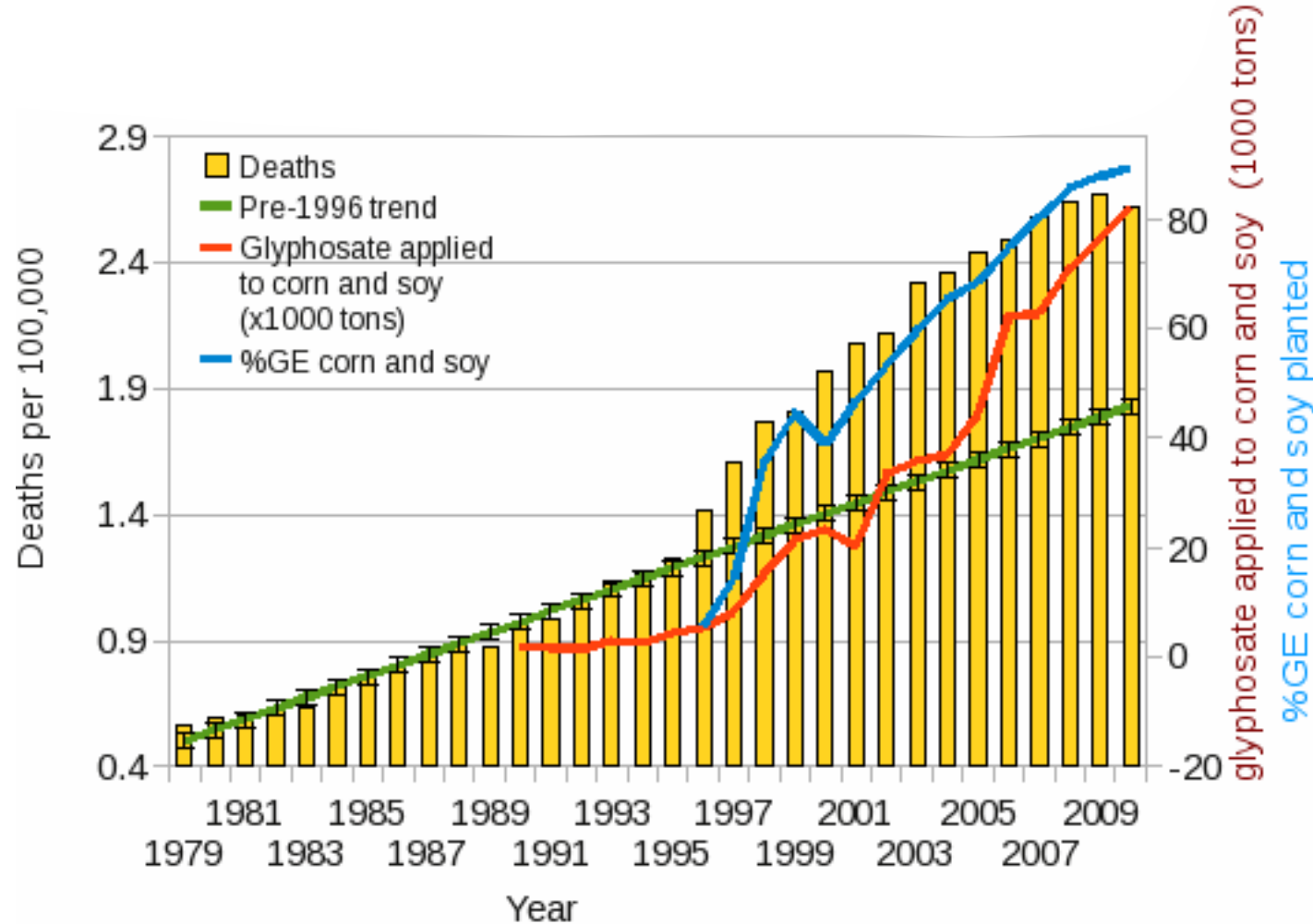
Age adjusted. Sources: USDA:NASS; CDC

Plotted against %GE corn & soy  
( $R = 0.9607$ ,  $p \leq 3.675e-06$ ) &  
glyphosate applied to corn &  
soy ( $R = 0.923$ ,  $p \leq 1.603e-07$ )



Age adjusted Deaths due to Stroke  
(ICD I62.9 & 432.9 haemorrhage, non embolic)  
plotted against %GE corn & soy ( $R = 0.9827$ ,  $p \leq 1.354e-06$ )  
& glyphosate applied to corn & soy ( $R = 0.9246$ ,  $p \leq 1.471e-07$ )

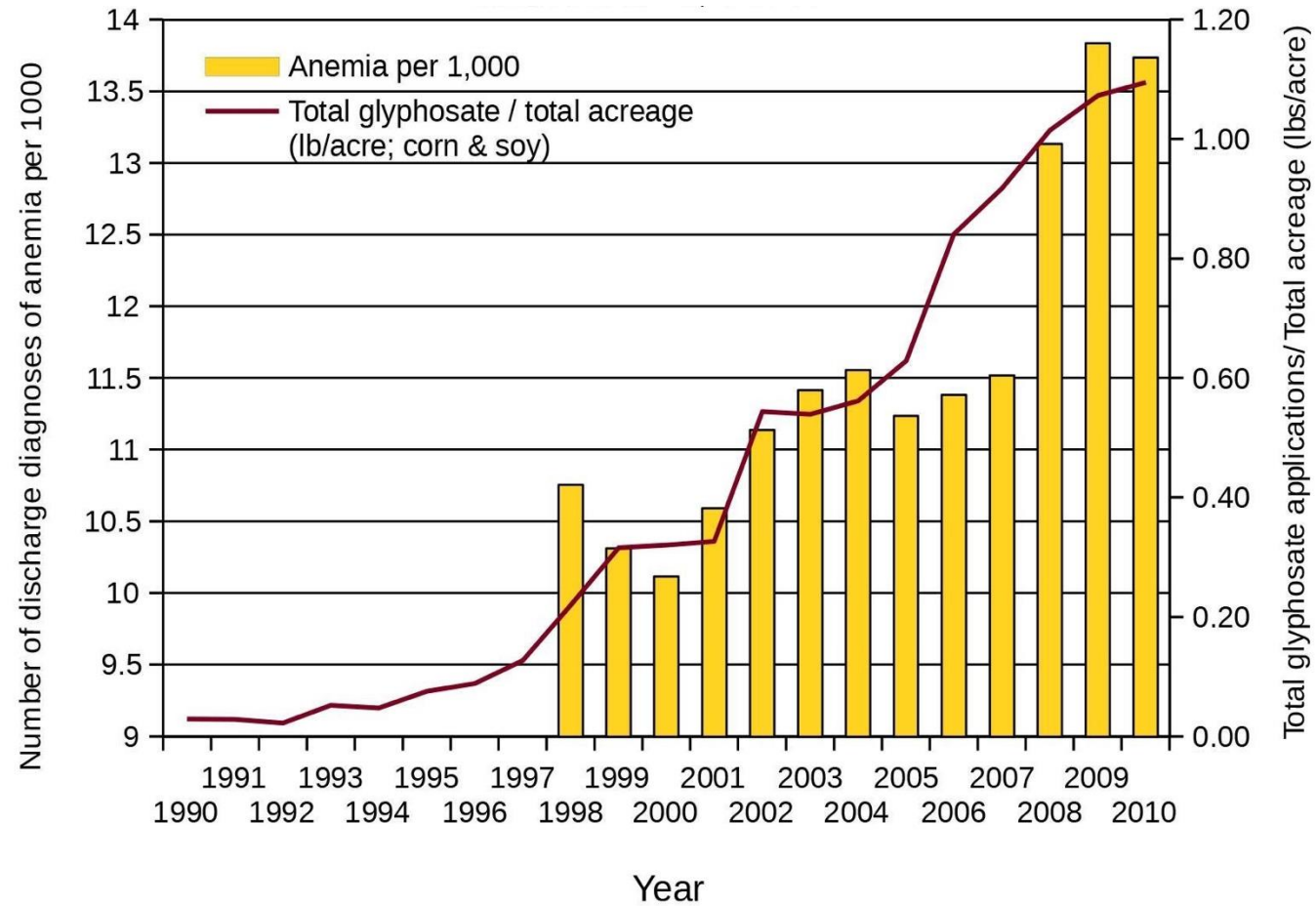
Sources: USDA:NASS; CDC



# Hospital Discharge Diagnoses of Anemia (ICD 280-85)

& Glyphosate applied to corn & soy crops ( $R = 0.8952$ ,  $p \leq 0.00018$ )

Sources: CDC; USDA



# THE SOLUTION

Establish new regulations, laws, and treaties by:

**Developing the science** and creating policy recommendations.

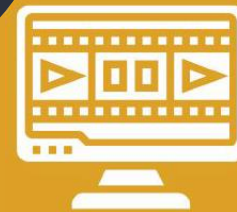


**New Regulations, Laws, and Treaties**

**Building a global coalition** uniting industries and advocacy movements.



**Spreading the message** through popular culture.



# ResponsibleTechnology.org

## JOIN OUR **COMMUNITIES**



Within IRT's GMO-Free Community, you'll discover learning modules, guides, videos, and resources to support your path towards a GMO-free lifestyle. We invite you to uncover the profound impact of GMOs on your health and the risks posed by GMO 2.0 to our planet's microbiome.

[JOIN NOW](#)



The Self-Care Advocate Community is an online community stewarded by IRT where individuals passionate about living a GMO-free lifestyle come together to share knowledge, support, and empower each other in their journey to living a GMO-free lifestyle.

[JOIN NOW](#)



Join IRT's Healthcare Practitioner Community and become part of a thriving community of healthcare practitioners committed to safeguarding the microbiome. Discover the power to make informed choices about GMOs, & GMO 2.0, and take action to create a better future for patients and the planet.

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