

Are herbicides a cause for allergies, immune incompetence (cancer) and ADHD?

by

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Many people report being allergic to gluten, nuts, cat hair, etc. or have hay fever or some form of autoimmune disorder. Also, the increase of the incidence and prevalence of cancer is increasing steadily. In our 2014 survey 36% of 264 students at an urban university (average age 24.5 years) reported having allergies (Peper and Del Dosso, 2015 unpublished). Over the last forty years more and more people are reporting allergies. Allergies are often dismissed because they are not a serious—just uncomfortable and may limit what you eat or where you visit (e.g., I can't eat a morning bun or I can't visit my aunt because she has a cat). In rare cases it may trigger life-threatening allergic reactions (anaphylaxis) which usually can be resolved by injecting a single dose of epinephrine using an EpiPen®

Allergies and autoimmune illnesses have become so common that we forget that it may be marker of immune incompetence and may affect the ability of the body to optimize health. The increase in allergies is an early indicator that something harmful is affecting the body. People who have allergies, autoimmune illnesses, diabetes or other disorders are possibly the “canaries in the coal mine” for the rest of the population. In earlier times before carbon monoxide and other poisonous gasses could be measured with instruments,

miner used a canary as a poisonous gas meter. If the canary died, the miners would exit the mine before they would die of the poisonous gasses.

There are many factors that contribute to the radical increase in asthma, rhinitis, allergies, Type 2 diabetes, cancer, and autoimmune disorders. These include excessive hygiene, lack of breast feeding and introducing foreign foods too early in the first year of a baby's life, ingestion of acetaminophen (Tylenol) by the pregnant mother and during the first year of baby's life, low Omega 3 levels during pregnancy, increased exposure to plastics and other endocrine disruptors, stress, etc. Many of these factors are outside of our control; however, diet and the ingestion of residual herbicides and pesticides in food appears to be a major risk factor.

In the last thirty years there has been a radical change in our diet. The food may look and even taste the same, yet it is totally different. Almost all grains, corn, soy, processed foods, and meats contain low levels of Monsanto's herbicide Roundup® and other herbicides and pesticides. Almost all grain, corn, soy and cotton are now genetically modified crops and herbicide tolerant to Roundup®.

Roundup® was first introduced in 1974 by Monsanto and is the most widely used herbicide for farm and urban use. The active ingredient is glyphosate with numerous other inert ingredients. The inert ingredients may also be harmful to humans. According to the US Department of Agriculture, as of 2012, 99% of durum wheat, 97% of spring wheat has been treated with herbicides. It is also used on rice, seeds, alfalfa, dried beans and peas, sugar cane and sweet potatoes (Swanson et al, 2014). As Roundup® and equivalent herbicides are used more and more, numerous illnesses including food allergies have increased. For the correlation between celiac disease (gluten intolerance) and glyphosate use see Figure 1.

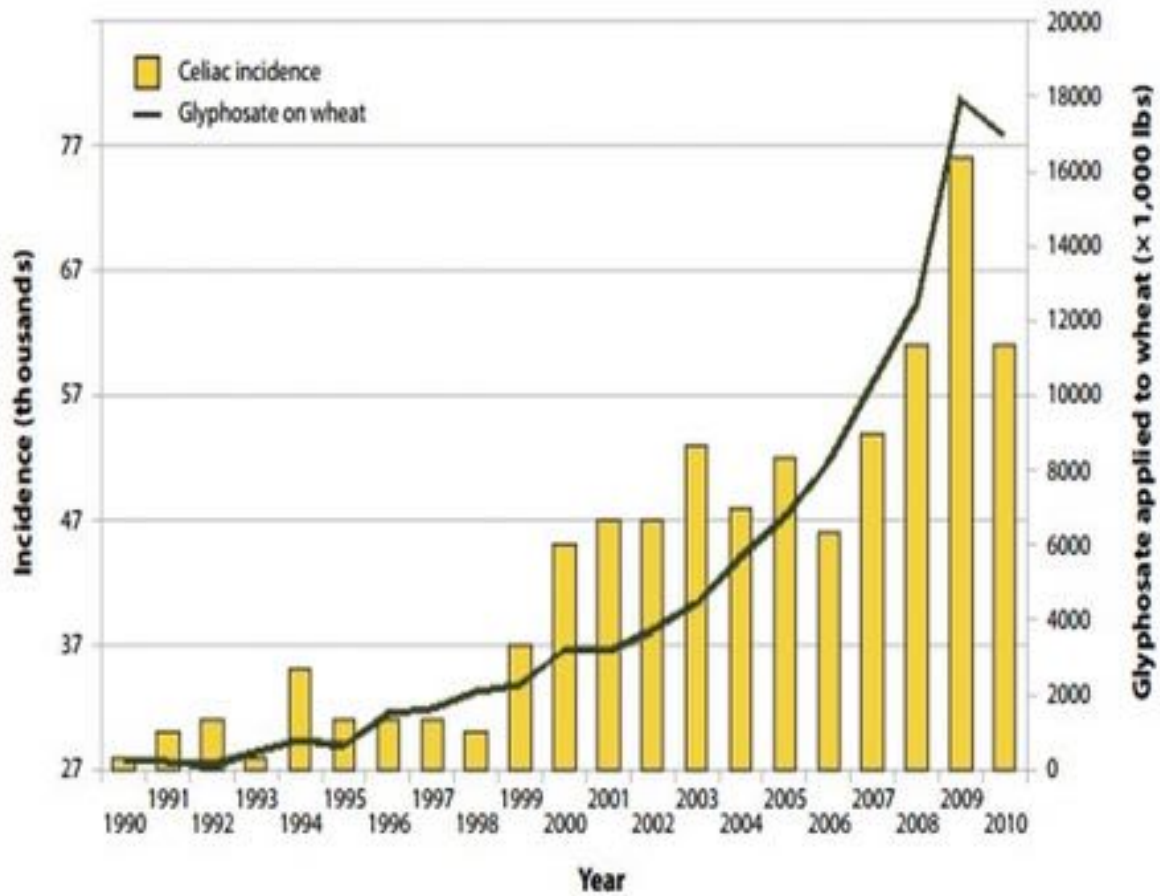


Figure 1

The correlation between increase in celiac disease (gluten intolerance) and increase of the use of the herbicide glyphosate (Roundup®) on the genetically modified grain shown in figure 1 (From: Samsel, A., & Seneff, S. 2013).

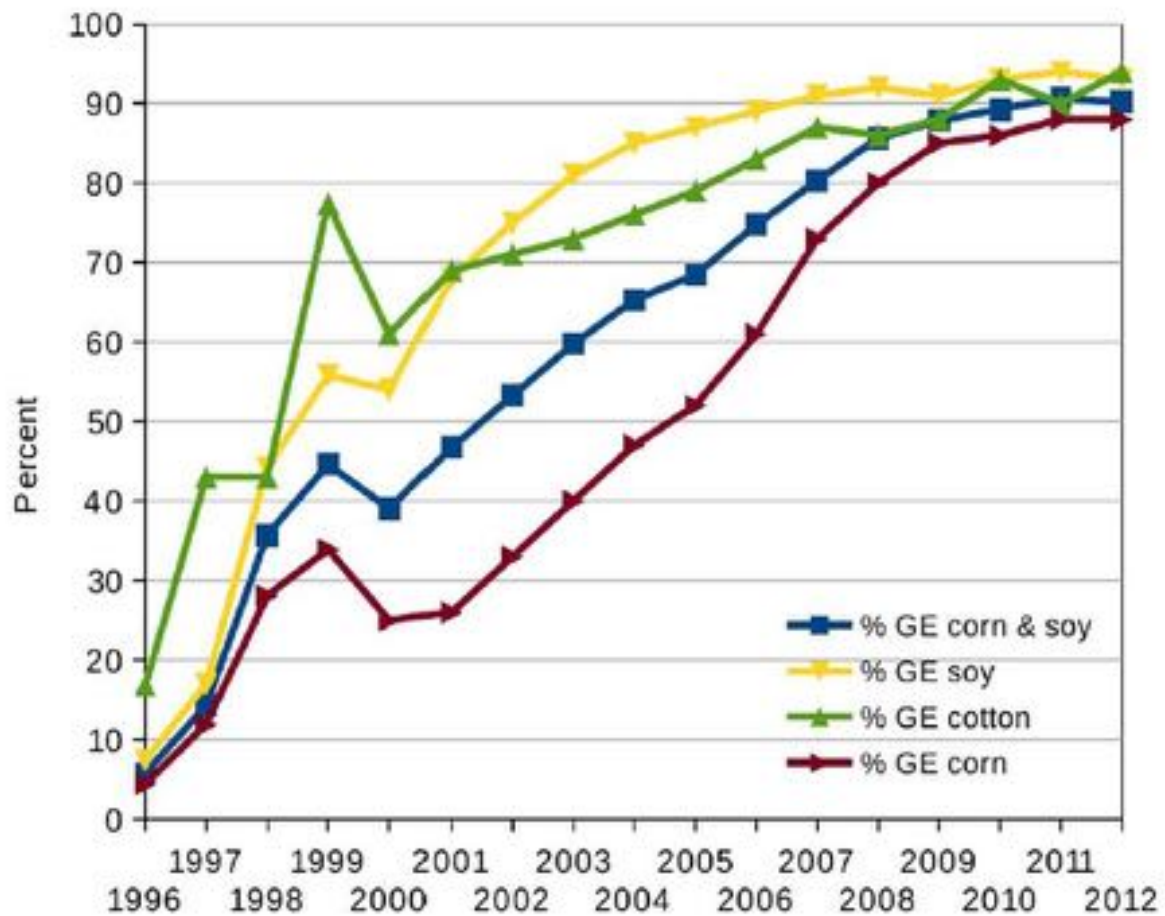


Figure 2

Presently, in the USA, more than 95% of all grain, corn and soy as well as cotton is genetically modified to be herbicide tolerant as shown in Figure 2.

In the USA and the EU, glyphosate is the most widely used herbicide and about 250 million pounds are applied to U.S farms and even lawns every year. In addition, the common wheat harvest protocol in the United States is to drench the wheat fields with Roundup® several days prior to harvesting. This allows crops to dry down for an earlier, easier and bigger harvest (Swanson et al, 2014; Sarah, 2014). Glyphosate and the many other herbicides and pesticides are in our food, animal fodder and thus in the meat, clothing, water supply and even air. Almost all human and animal food now contains low levels of glyphosate and its inert but poisonous additional ingredients which may impact our health.

The increased application of glyphosate with the increase of chronic diseases over the last 35 years correlates highly (great than 0.9) and is highly significant for obesity ($R=0.96$), diabetes ($R=0.98$), end stage renal disease death ($R=0.97$), Crohn’s disease and ulcerative colitis ($R=0.94$), death due to intestinal infection ($R=0.97$), autism in children (6-21 years) ($R=0.99$), deaths from senile dementia ($R=0.99$), and death from Alzheimer’s ($R=0.93$). Figure 3 and 4 shows the relationship between diabetes, autism and glyphosate.

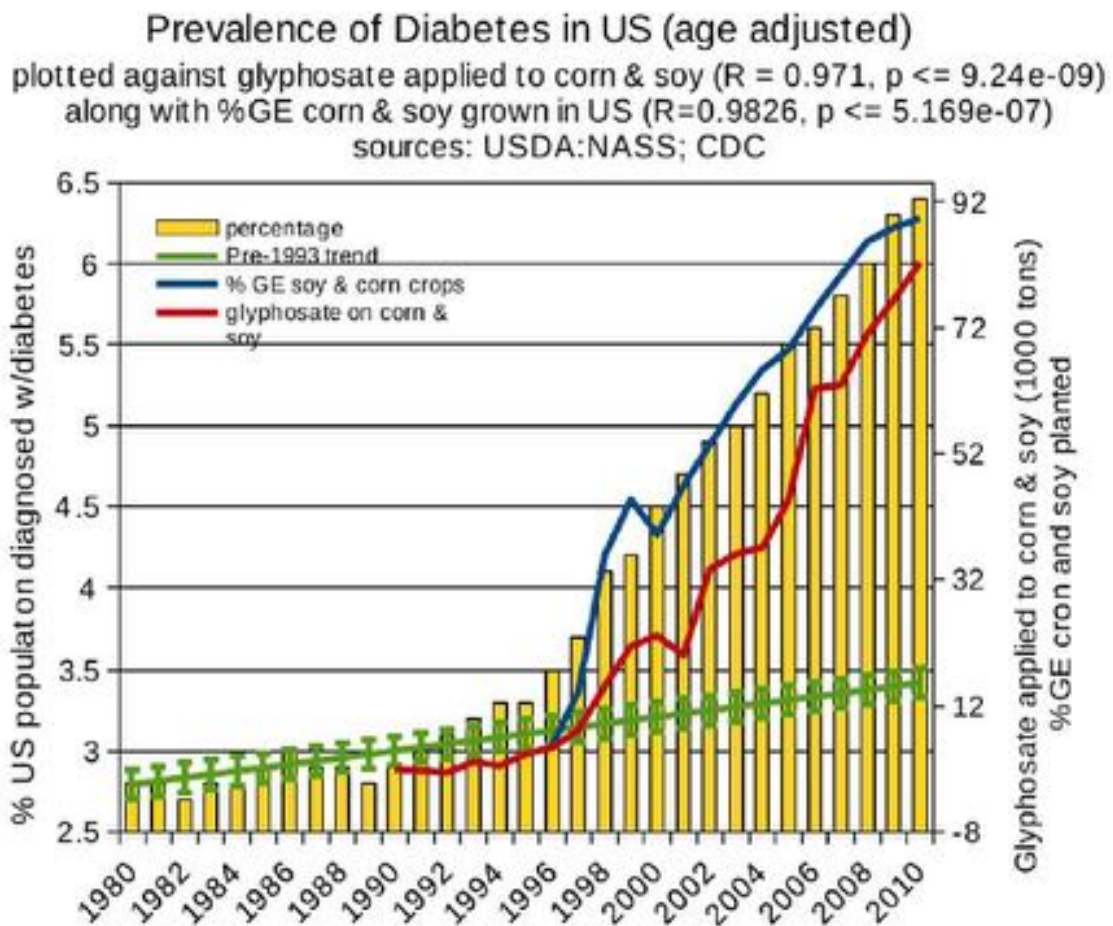


Figure 3

Figure 3 shows the correlation between age-adjusted diabetes prevalence and glyphosate applications and percentage of US corn and soy crops that are genetically engineered (From: Swanson et al, 2014).

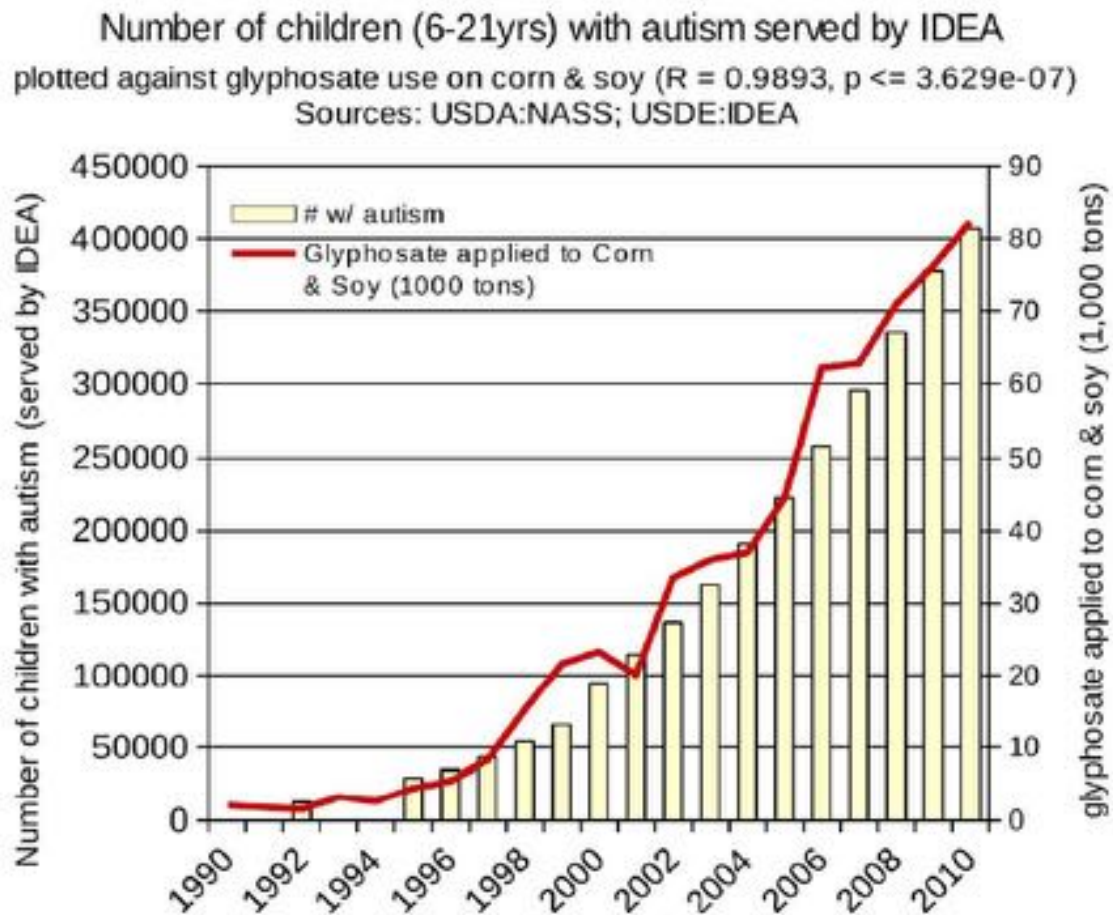


Figure 4

Correlations are not proof and similar correlations could be plotted between increased production of plastics, high fructose corn syrup, frequent cell phone use, antidepressant and ADHD medications. Correlations may strongly suggest possible relationship which should be investigated. It is very difficult to investigate the correlation because most people unknowingly have ingested glyphosate. When using naturalistic observations such as comparing people who

eat only organic versus non-organic foods, there are many other variables that could account for the differences.

Roundup® residues in food is harmful is from a biological perspective. The purpose of using glyphosate and its inert ingredients is to act as a herbicide and biocide to suppress weed growth and act as a drying agent to improve harvest. As human beings are biological organisms, glyphosate and its inert ingredients will have similar effects. It affects our cellular metabolism and especially our bacteria that live in our gut and are necessary for our health. As Samsel & Seneff, (2013) point out, ‘it kills the beneficial bacteria in our gut, leading to the steep rise in intestinal diseases.’ Specifically, Shehata et al (2012) found that “highly pathogenic bacteria as Salmonella Enteritidis, Salmonella Gallinarum, Salmonella Typhimurium, Clostridium perfringens and Clostridium botulinum are highly resistant to glyphosate. However, most of beneficial bacteria such as Enterococcus faecalis, Enterococcus faecium, Bacillus badius, Bifidobacterium adolescentis and Lacto-bacillus spp. were found to be moderate to highly susceptible” (Swanson et al, 2014).

Given the very strong correlations of increased disease with increased use of Roundup®, the demonstrated evidence that glyphosate disrupts gut bacteria balance, cellular metabolic processes, kills human embryonic, placental and umbilical cord cells, and acts as endocrine disrupters, I strongly recommend avoiding glyphosate and other types of herbicide and pesticide contaminated foods. Use the precautionary principle and eat only organic foods.

If the radical increase of allergy and immune incompetence is linked to low level chronic exposure to glyphosate, than avoiding glyphosate and other pesticide and herbicide laced foods may possibly reverse the allergy and immune incompetence. When they adapt a holistic lifestyle which included stress management and eating organic foods, some report their immune system

became more competent and their allergies disappeared. For example, a 25 year old young woman who successfully reversed cervical dysplasia and eliminated high strains of HPV (her last Paps were normal and the HPV was gone) also found that her nut allergy (Peper, 2015). As she stated, “I was able to rid myself of a nut allergy that I developed when I was 19. I frequently had trouble breathing therefore I went to an allergist and they told me I had a nut allergy to peanuts (4 out of 4) and tree nuts (2 out of 4). This past July, knowing how truly healthy I had become and after noticing a little to no reaction when I accidentally consumed a nut, I decided to go back to the allergist. I got the test done, and no signs of a nut allergy came up. I believe it was due to this lifestyle change.”

In summary, eat only organic foods when possible and follow the wisdom of numerous countries that have banned the use of Roundup®. This year, the Netherlands followed Russia, Tasmania, and Mexico to ban Roundup®.

Additions to this article by Erik Peper by Robert Gorter, MD, PhD:

GM crops have bred superweeds

Jay Holder, a farming consultant in Ashburn, Georgia, first noticed Palmer amaranth (*Amaranthus palmeri*) in a client’s transgenic cotton fields about five years ago. Palmer amaranth is a particular pain for farmers in the southeastern United States, where it successfully competes with cotton for moisture, light and soil nutrients and can quickly take over fields.

Since the late 1990s, US farmers had widely adopted GM cotton engineered to tolerate the herbicide glyphosate, which is marketed as Roundup by Monsanto in St Louis, Missouri. The herbicide–crop combination worked spectacularly well

— until it didn't. In 2004, herbicide-resistant amaranth was found in one county in Georgia; by 2011, it had spread to 76. "It got to the point where some farmers were losing half their cotton fields to the weed," says Holder.

Some scientists and anti-GM groups warned that GM crops, by encouraging liberal use of glyphosate, were spurring the evolution of herbicide resistance in many weeds. Twenty-four glyphosate-resistant weed species have been identified since Roundup-tolerant crops were introduced in 1996. But herbicide resistance is a problem for farmers regardless of whether they plant GM crops. Some 64 weed species are resistant to the herbicide atrazine, for example and no crops have been genetically modified to withstand it (see 'The rise of Superweeds' and figure 5).

THE RISE OF SUPERWEEDS

Weed species often become resistant to herbicides. Glyphosate resistance, once deemed unlikely, rose after genetically engineered crops were introduced in the mid-1990s.

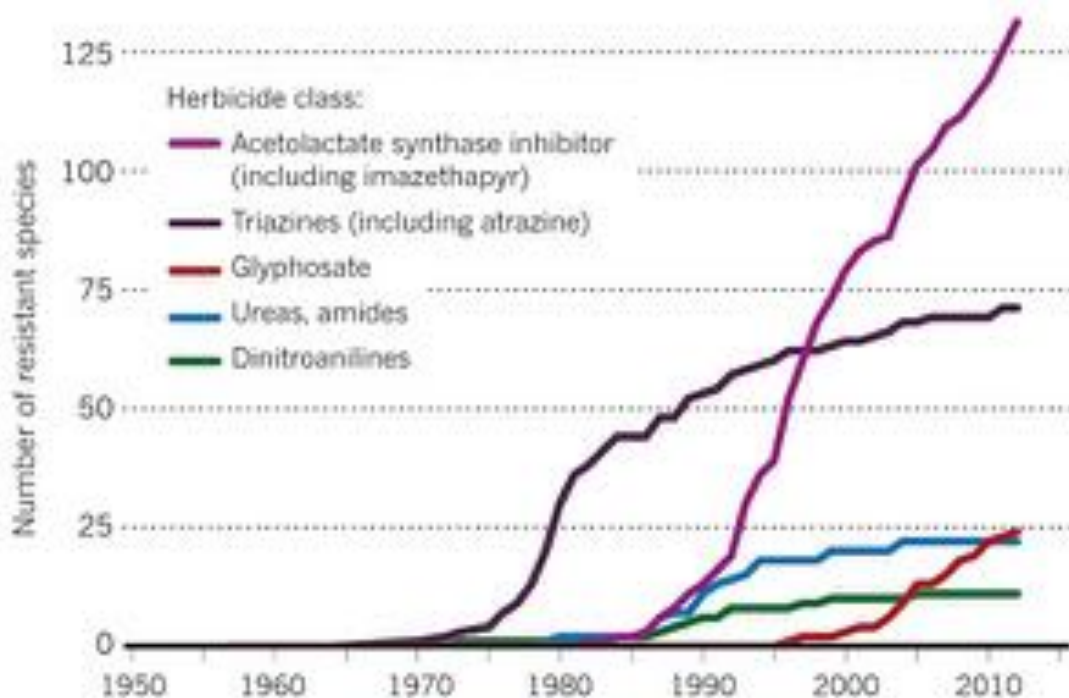


Figure 5

Still, glyphosate-tolerant plants could be considered victims of their own success. Farmers had historically used multiple herbicides, which slowed the development of resistance. They also controlled weeds through ploughing and tilling — practices that deplete topsoil and release carbon dioxide, but do not encourage resistance. The GM crops allowed growers to rely almost entirely on glyphosate, which is less toxic than many other chemicals and kills a broad range of weeds without ploughing. Farmers planted them year after year without rotating crop types or varying chemicals to deter resistance.

This strategy was supported by claims from Monsanto that glyphosate resistance was unlikely to develop naturally in weeds when the herbicide was used properly. As late as 2004, the company was publicizing a multi-year study suggesting that rotating crops and chemicals does not help to avert resistance. When applied at Monsanto's recommended doses, glyphosate killed weeds effectively, and “we know that dead weeds will not become resistant”, said Rick Cole, now Monsanto's technical lead of weed management, in a trade-journal advertisement at the time. The study, published in 2007, was criticized by scientists for using plots so small that the chances of resistance developing were very low, no matter what the practice.

Glyphosate-resistant weeds have now been found in 22 countries worldwide, with significant impacts in India, Brazil, Australia, Argentina and Paraguay, says Ian Heap, director of the International Survey of Herbicide Resistant Weeds, based in Corvallis, Oregon. And Monsanto has changed its stance on glyphosate use, now recommending that farmers use a mix of chemical products and ploughing. But the company stops short of acknowledging a role in creating the problem. “Over-confidence in the system combined with economic drivers led to reduced diversity in herbicide use,” Cole tells Nature.

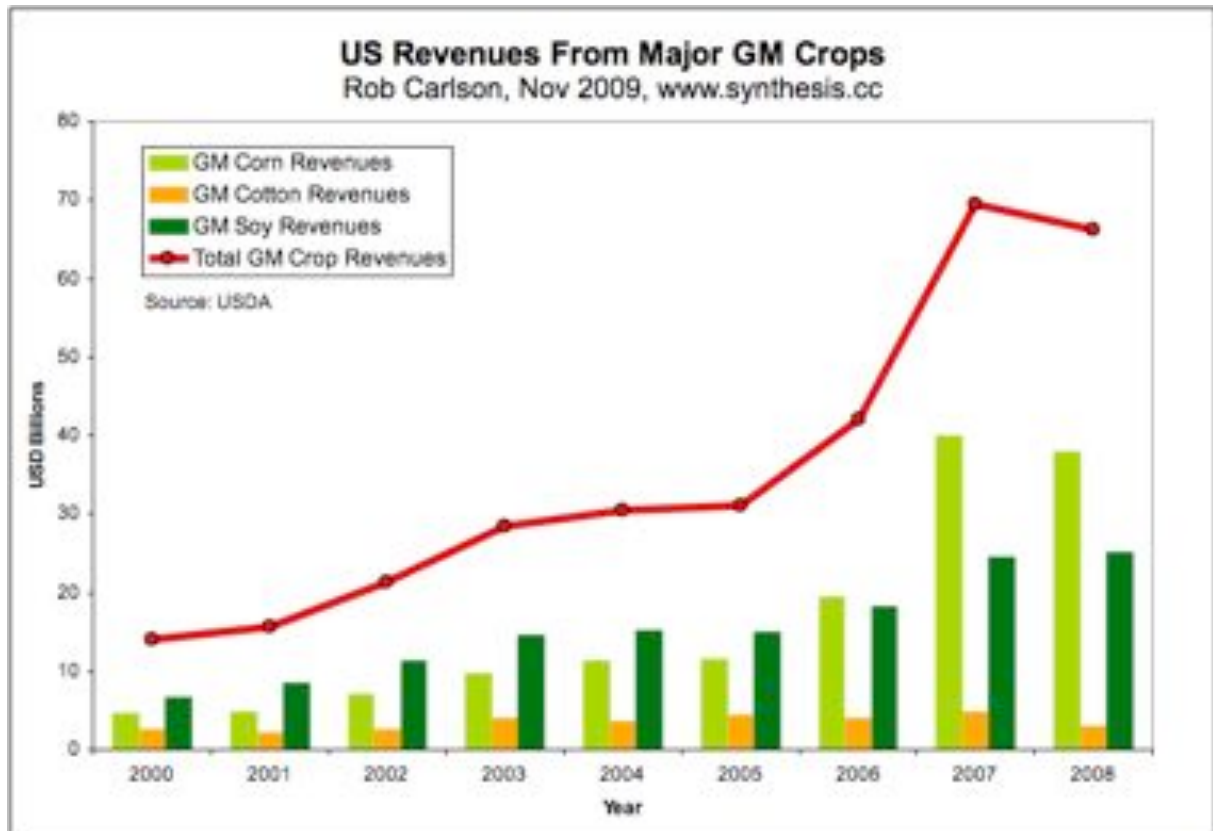
On balance, herbicide-resistant GM crops are less damaging to the environment than conventional crops grown at industrial scale. A study by PG Economics, a consulting firm in Dorchester, UK, found that the introduction of herbicide-tolerant cotton saved 15.5 million kilograms of herbicide between 1996 and 2011, a 6.1% reduction from what would have been used on conventional cotton. And GM crop technology delivered an 8.9% improvement to the environmental impact quotient — a measure that considers factors such as pesticide toxicity to wildlife — says Graham Brookes, co-director of PG Economics and a co-author of the industry-funded study, which many scientists consider to be among the field's most extensive and authoritative assessments of environmental impacts.

The question is how much longer those benefits will last. So far, farmers have dealt with the proliferation of resistant weeds by using more glyphosate, supplementing it with other herbicides and ploughing. A study by David Mortensen, a plant ecologist at Pennsylvania State University in University Park, predicts that total herbicide use in the United States will rise from around 1.5 kilograms per hectare in 2013 to more than 3.5 kilograms per hectare in 2025 as a direct result of GM crop use.

To offer farmers new weed-control strategies, Monsanto and other biotechnology companies, such as Dow AgroSciences, based in Indianapolis, Indiana, are developing new herbicide-resistant crops that work with different chemicals, which they expect to commercialize within a few years.

Mortensen says that the new technologies will lose their effectiveness as well. But abandoning chemical herbicides completely is not a viable solution, says Jonathan Gressel, a weed scientist at the Weizmann Institute of Science in Rehovot, Israel. Using chemicals to control weeds is still more efficient than ploughing and tilling the soil, and is less environmentally damaging. “When

farmers start to use more sustainable farming practices together with mixtures of herbicides they will have fewer problems,” he says.



Massive death among honey bees:

A strong correlation exists between the massive death among bees in countries where (with Genetically Modified Crop) the herbicide Roundup ® was introduced. Robert Gorter likes to point out that there is no documented increase of deaths of honey bees in large city: this is an interesting fact is that honey bees in large cities are safer than in a rural area as they hardly show an increased death rate: *Roundup ® is not used in city gardens or on one's balcony.....*



Honey bee (Apis mellifera)

References:

Chhabra R, Kolli S & Bauer JH (2013). Organically Grown Food Provides Health Benefits to *Drosophila melanogaster*. PLoS ONE 8(1): e52988. doi:10.1371/journal.pone.0052988

Peper, E. (2015). Thinking out of the box with biofeedback for the treatment of psychogenic non-epileptic seizures, vulvodynia, and CIN III carcinoma in situ cervical dysplasia. Paper accepted for the 46th Annual Meeting of the Association for Applied Psychophysiology and Biofeedback, Austin, Texas, March 11 – 14, 2015.

Peper, E. & Del Dosso, A. (2015 unpublished). Skipping breakfast a risk for blanking out on exams.

Samsel, A., & Seneff, S. (2013). Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance. *Interdisciplinary toxicology*, 6(4), 159-184.

Sarah (2014). The real reason wheat is toxic (it's not the gluten). *The Healthy Home Economist*, November 13, 2014. Retrieved January 10, 2015 <http://www.thehealthyhomeeconomist.com/real-reason-for-toxic-wheat-its-not-gluten/>

Saw, L., Shumway, J., & Ruckart, P. (2011). Surveillance Data on Pesticide and Agricultural Chemical Releases and Associated Public Health Consequences in Selected US States, 2003–2007. *Journal of medical toxicology*, 7(2), 164-171. http://download.springer.com/static/pdf/604/art%253A10.1007%252Fs13181-011-0152-8.pdf?auth66=1421018047_4db65b4e5f0e0349a608560a6c1392e7&ext=.pdf

Shehata, A. A., Schrödl, W., Aldin, A. A., Hafez, H. M., & Krüger, M. (2013). The effect of glyphosate on potential pathogens and beneficial members of poultry microbiota in vitro. *Current microbiology*, 66(4), 350-358.

Swanson, N. L., Leu, A., Abrahamson, J., & Wallet, B. (2014). Genetically engineered crops, glyphosate and the deterioration of health in the United States of America. *Journal of Organic Systems*, 9(2), 6-37. http://www.organic-systems.org/journal/92/JOS_Volume-9_Number-2_Nov_2014-Swanson-et-al.pdf