

GMO, Failed Promises; Flawed Science: A Serious Health and Safety Issue

Opinions touting the benefits of genetically modified food need correcting. There is nothing in biotechnology that has increased the intrinsic yield potential of any crop. Instead, there is a consistent yield reduction when the integrity of the normal genetics is disrupted by genetic engineering. Yield and quality factors are complex genetics accomplished by traditional breeding and are not amenable to ‘silver bullet’ tinkering. Genetic engineering is more like a virus infection than a normal breeding process, and “substantially equivalent” is a myth.

Rather than encouraging independent research on genetically modified organisms (GMO) safety or performance, the companies (such as Monsanto and other GMO seed producing) have denied access to the seed for research, forbidden publication of data, and threatened legal action if negative data are disclosed. The indiscriminate use of glyphosate and GMO crops are precipitating a major chronic health and environmental crisis. Rather than the way to feed the world, current genetic engineering is a disaster in the making and is not a sustainable strategy!

The benefits claimed for GMOs are failed promises. It is well documented that GMO crops have reduced root growth, lower nutrient density, increased disease, greater stress susceptibility and the need for more pesticides than “conventional” crops. The abundance of weeds and insects resistant to GMO plants, or the chemicals they were engineered to tolerate, complicate our ability to control these pests. Because of this, GMOs should be characterized as toxic chemical accumulating and pesticide containing foods.

Contrary to the common claim of safety, a large volume of peer-reviewed scientific information shows that genetically engineered (GE) products and the Roundup® herbicide that 85 % of GE plants were engineered to tolerate, are chronically toxic to human and animal tissues. They lead to cancer, premature death, kidney and liver failure, and blood disorders. There are NO peer-reviewed scientific studies that show that GMO crops, or the chemicals they are engineered to tolerate or produce, are safe for human or animal consumption.

Medical data indicates that millions of children and adults are suffering from consuming the chronically toxic GMO products or the glyphosate (Roundup®) these plants accumulate. Massachusetts Institute of Technology scientists have documented the biochemical disruption caused by genetic engineering and concluded that glyphosate (Roundup®) is the most chronically toxic chemical in our environment. Ninety-three percent of women tested had the GMO Bt toxin in their blood, and 70% passed this toxic pesticide to their developing child in the womb. The person then, in effect, becomes their own pesticide factory.

As a patented powerful antibiotic, the herbicide glyphosate is toxic to microorganisms in the soil and GI tract of humans and animals that are essential for mineral absorption, vitamin production, tryptophan synthesis in autism, and defense against pathogens such as *E. coli*, *Salmonella*, and *Clostridium*. The increase of ‘gut related’ diseases such as Alzheimer’s, autism, birth defects, breast cancer, celiac, chronic fatigue, end stage kidney failure, infertility, irritable bowel, leaky gut, Parkinson’s, peritonitis, rheumatoid arthritis, and many others are directly correlated with GMO proteins and glyphosate residues in food and feed products.

The indiscriminate use of glyphosate and GMO crops is precipitating a major chronic health and environmental crisis. Drift from spraying glyphosate on GMO crops increased birth defects, reproductive failure and cancer in adjacent towns up to 450 % in Argentina. Other studies show that as little as 0.1 part per billion Roundup® in drinking water increased breast cancer, kidney failure, liver failure, endocrine hormone disruption and cytotoxicity to cells and tissues.

Rather than fewer pesticide applications, there has been a many fold increase in pesticide use with GMO crops. Much of this increased pesticide accumulates in food and feed products. EPA has approved residue limits 4,000 times higher than previously permitted – all without any safety evaluation! The USDA, EPA, and FDA have NO independent testing on safety, and rely solely on statements of the companies that the higher levels are safe.

Ninety percent of the people in the U.S. want GMO labeling; however, it is much more than a 'right to know' issue! GMOs are a serious chronic health and safety threat to all humans and to our environment. Future historians may well look back upon our time and write, not about how many pounds of pesticides we did or did not apply, but about how willing we are to sacrifice our children and jeopardize future generations for this massive experiment we call genetic engineering that is based on failed promises and flawed science, just to benefit the bottom line of a commercial enterprise.

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Some suggested reading

- Ayyadurai, V.A.S. and Deonikar, P. 2015. Do GMOs accumulate formaldehyde and disrupt molecular systems equilibria? Systems biology may provide answers. *Agric. Sci.* 2015, 6: [<http://www.scirp.org/journals/as> doi]
- Antonioni, M., Robinson, C., Fagan, J. 2014. *GMO Myths and Truths Report: An evidence-based examination of the claims made for the safety and efficacy of genetically modified crops.* 2nd Ed. Earth Open source 330 pp. (free download).
- Carman et al, 2013. A long-term toxicology study on pigs fed a combined genetically modified (GM) soy and GM corn maize diet. *J. Org. Syst.* 8:38-54.
- Druker, S.M. 2015. *Altered Genes, Twisted Truth: How The Venture To Genetically Engineer Our Food Has Subverted Science, Corrupted Government, and Systematically Deceived The Public.* Clear River Press, SLC, UT.
- ENSSER. 2014. Statement: No scientific consensus on GMO safety. European Network of Scientists for Social and Environmental Responsibility. 19 May 2014.
- Guyton, K.C., et al. 2015. Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate. World Health Org.-IARC, Lyon France DOI: [http://dx.doi.org/10.1016/S1470-2045\(15\)70134-8](http://dx.doi.org/10.1016/S1470-2045(15)70134-8).
- Hoy, J, Swanson, N, and Seneff, S 2015. The high cost of pesticides: Human and animal diseases. *Poultry, Fisheries and Wildlife Sciences* 3:1-19.
- Krimsky, S. 2015. An illusory consensus behind GMO health assessment. *Science, Technology, and Human values* 1-32.
- Samsell, A. and Seneff, S. 2012. Glyphosate's suppression of cytochrome P450 enzymes and amino acid biosynthesis by the gut microbiome: pathways to modern diseases. *Entropy* 15:1-x manuscripts; doi: 10.3390/el40x000x.
- Samsell, A. and Seneff, S. 2013. Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance. *Interdiscip. Toxicol.* 6:159-184.
- Samsell, A. and Seneff, S. 2015. Glyphosate, pathways to modern diseases III: Manganese, neurological diseases, and associated pathologies. *Surg. Neurol. Int.* 6:45-70.
- Samsell, A. and Seneff, S. 2015. Glyphosate, pathways to modern diseases IV: cancer and related pathologies. *J. Biol. Physics Chem* 15: 121-159.
- Seralini, G-E, Clair, E., Mesnage, R., Gress, S., Defarge, N., Malaesta, M., Hennequin, D., and de Vendomois, JS. 2012. Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize. *Food Chem. Toxicol.* <http://dx.doi.org/10.1016/j.fct.2012.08.005>.
- Seralini, G-E, Clair, E., Mesnage, R., Gress, S., Defarge, N., Malaesta, M., Hennequin, D., and de Vendomois, JS. 2014. Republished study: long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize. *Environmental Sci. Europe* 26:14-31
- Shehata, A., Schrodli, W., Aldin, AA, Hafez, HM., Krueger, M. 2012. The effect of glyphosate on potential pathogens and beneficial members of poultry microbiota in vitro. *Current Microbiology* DOI 10.1007/s00284-012-0277-2.
- Swanson, NL, Leu, A., Abrahamson, J., and Wallet, B. 2014. Genetically engineered crops, glyphosate and the deterioration of health in the United States of America. *Journal of Organic Systems* 9:6-37.