

Monsanto's Roundup Residues in GM Food Cause Cell Damage - Joe Mercola DO

Residues of Monsanto's Roundup herbicide found in GM food and feed can cause cell damage and even death, even at very low levels. The authors of a study on the subject say their research "... points to undesirable effects which are currently masked or hidden from scientific scrutiny."

Roundup herbicides are among the most commonly used in the world, especially on GM crops that are engineered to be Roundup resistant. Their residues are among the major pollutants, and they are authorized as residues contaminating GM foods and feed at the tested levels.

The researchers studied toxicity mechanisms of four different Roundup formulations in human cells. The formulations were diluted at minimal doses (up to 100,000 times or more), but they still caused cell death within a few hours. The researchers also noted membrane and DNA damages, and found the formulations inhibit cell respiration.

Sources:

[Chemical Research in Toxicology January 2009;22\(1\):97-105](#)

[Organic Consumers Association January 5, 2009](#)

Dr. Mercola's Comments:

Roundup Ready soybean, cotton and corn crops are the world's largest group of genetically modified crops. In fact, the GM Roundup Ready gene is part of more than 75 percent of soybeans, 65 percent of cotton and 10 percent of corn grown in the United States.

This particular variety of GM crops became so popular because it allows farmers to spray Monsanto's Roundup herbicide directly onto their fields without harming the crops. Ordinarily, if you were to spray Roundup, or any other glyphosate-based herbicide, onto a plant, it would die.

Millions of pounds of Roundup are used every year on U.S. gardens, lawns and farms. It works by inhibiting an enzyme called EPSP synthase, which is necessary for plants to grow. Without it,

plants are unable to produce essential proteins so they slowly yellow and die. The GM Roundup Ready crops, however, produce an enzyme that has the same function as EPSP synthase, but is not affected by Roundup.

As you might imagine, the use of Roundup herbicide has increased dramatically since the GM Roundup Ready crops were introduced, and serious problems have been [reported ever since](#).

GM Crops May Contain Toxic Roundup Residues

It's widely known that GM Roundup Ready crops contain Roundup residues. This latest study showed, for the first time, just how toxic these residues may be to your health. Even when researchers tested formulations of Roundup that were highly diluted (up to 100,000 times or more) on human cells, the cells died within 24 hours.

They also found damage to cell membranes and DNA, along with an inhibition of cell respiration.

Further, the researchers discovered that the mixture of components used as Roundup adjuvants actually amplified the action of the glyphosate, making at least one of its metabolites even more toxic. The researchers wrote:

"This work clearly confirms that the adjuvants in Roundup formulations are not inert. Moreover, the proprietary mixtures available on the market could cause cell damage and even death around residual levels to be expected, especially in food and feed derived from Roundup formulation-treated crops."

More Dangerous Roundup Research

Monsanto long used the slogans, "It's Safer than Mowing," "Biodegradable," and "Environmentally Friendly" to describe Roundup -- until the real effects of this toxic herbicide were revealed and they were forced to discontinue their deceptive advertising.

Glyphosate, the [active ingredient in RoundUp](#), is the most commonly-reported cause of pesticide

illness among landscape maintenance workers in California. Additionally:

- The surfactant ingredient in Roundup is more acutely toxic than glyphosate itself, and the combination of the two is even more toxic.
- Glyphosate is suspected of causing genetic damage.
- Glyphosate is acutely toxic to fish and birds and can kill beneficial insects and soil organisms that maintain ecological balance.
- Laboratory studies have identified adverse effects of glyphosate-containing products in all standard categories of toxicological testing.

In one animal study, rats given 1,000 mg/kg of glyphosate resulted in a 50 percent mortality rate, and skeletal alterations were observed in over [57 percent of fetuses!](#)

And just so you understand, GM crops that are resistant to Roundup are the most widely sold GM varieties. So if you eat GM foods, there is a very good chance those foods contain Roundup residues -- and possibly hefty amounts of them.

According to [Jeffrey Smith](#), leading spokesperson on the dangers of GM foods, by 2004, farmers used an estimated 86 percent more herbicide on GM soy fields compared to non-GM. Higher levels of herbicide residue in this GM soy might cause health problems, and many symptoms identified in one UK soy allergy study are also related to glyphosate exposure.

The allergy study identified irritable bowel syndrome, digestion problems, chronic fatigue, headaches, lethargy, and skin complaints including acne and eczema, all related to soy consumption.

Symptoms of glyphosate exposure include nausea, headaches, lethargy, skin rashes, and burning or itchy skin. It is also possible that glyphosate's breakdown product AMPA, which accumulates in GM soybeans after each spray, might contribute to allergies.

GM Foods are NOT Safe

This latest study is just one more reason why you should be very careful about keeping GM foods out of your diet. Aside from their potential to be contaminated with toxic Roundup residues, GM crops routinely create unintended proteins, alter existing protein levels, or even change the components and shape of the protein that is created by the inserted gene.

This results in brand new proteins that have never before existed in food, some of which may be causing [severe allergic reactions](#).

Creating a GM crop can also produce massive changes in the natural functioning of the plant's DNA. Native genes can be mutated, deleted, permanently turned on or off, or change their levels of protein expression. No one knows how this will impact human health, but so far Jeffrey Smith has documented at least 65 serious health risks related to GM foods.

Among them:

- Offspring of rats fed GM soy showed a five-fold increase in mortality, lower birth weights, and the inability to reproduce
- Male mice fed GM soy had damaged young sperm cells
- The embryo offspring of GM soy-fed mice had altered DNA functioning
- Several US farmers reported sterility or fertility problems among pigs and cows fed GM corn varieties
- Investigators in India have documented fertility problems, abortions, premature births, and other serious health issues, including deaths, among buffaloes fed GM cottonseed products

Further, just last year a long-term feeding study commissioned by the Austrian Agency for Health and Food Safety confirmed GM corn seriously affects reproductive health in mice.

The results were so worrisome that GM opponents called for an immediate ban of all GM foods and GM crops in order to [protect the health of humankind](#) and the fertility of women around the world.

Important Tips for Avoiding GM Food

About 70 percent of the foods in your grocery store contain GM foods, so it can be difficult to eat a GM-free diet, but I feel strongly it is one of the more important things you can do for your health, and to help protect the environment.

Particularly in the United States, the GMO giants have been very effective in eliminating legislation that would require them to clearly label GM products and, as a result, most grocery stores in the United States do not post signs next to produce to let you know it's been genetically modified.

So here is the way you can do it:

Examine the little sticker on the produce and if you see a five-digit number that begins with an 8, take a big pass, as that produce is GM.

Most processed foods and drinks also contain genetically modified ingredients, unless they are organic.

As an aside, if the health risks alone aren't enough to make you change your mind about eating GM foods, perhaps this little tidbit will be: Farmers who buy Monsanto's Roundup Ready seeds are required to sign an agreement promising not to save or sell the seeds, which has been the traditional practice since the beginning of agriculture.

The result of this insane practice is that farmers across the world must now buy new seeds every year, and they must buy them from Monsanto.

So whether you do it for health purposes or to keep an evil company like Monsanto from [gaining control of the food supply](#), making an effort to avoid GM foods is a wise decision.

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