

Genetic Engineering and Corporate Agribusiness: GMOs and the Impacts of Glyphosate Herbicide

By [Prof Don Huber](#)

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Seeds evolved for millions of years before humans invented corporate agribusiness.

Genetic selection to improve crops began only when people invented farming.

Early on, there was a vast germ pool from which to select differences in vigor, growth, quality characteristics, yield or disease resistance. Even after years of extensive selection and later blending into hybrids by diligent researchers during the past century, most of this inheritance is unpatentable and therefore useless as a source of power or corporate-style profit.

Genetic engineering to modify crops exists because most of the world's farmers depend on seeds, and as a novel way to manipulate genes it offered inviolate proprietary control. Two traits account for practically all of the genetically modified crops grown in the world today.

One deploys herbicide-tolerance enabled by a glyphosate-insensitive form of the EPSPS gene coding (key to this GMO is the soil bacterium *Agrobacterium tumefaciens*). The other uses insect-resistance due to one or more toxin genes derived from the soil bacterium *Bacillus thuringiensis*.

It is the former that concerns us here, for without glyphosate, the biotech industry would be an orphan, all dressed up with nowhere to go. Glyphosate, often known as Roundup® after the popular Monsanto product but available in many guises since its patent expired in 2000, is the partner GMOs must bring to the dance. It is a broad-spectrum herbicide that ingeniously ties up nutrient access rather than killing unwanted plants directly. It was heralded for many years as a relatively benign replacement for the horrific, dioxin-based herbicides of the past. The figures don't lie; GMOs drive glyphosate sales.

Enter Don Huber, a plant pathologist of 50 years standing, now Emeritus Professor at Purdue University and enjoying an active post-academic life. Huber is an international authority on nutrient deficiency diseases of plants and is particularly well situated to comment on glyphosate as it functions through nutrient tie-up, not inherent toxicity.

Recently his retirement turned hyperactive when a letter he wrote to Secretary of Agriculture Tom Vilsack leaked out. Although much of the mainstream media ignored it, the letter was an immediate sensation. Huber — not coincidentally a speaker at the 2010 Acres U.S.A. Conference — informed Vilsack that a new infectious agent had been discovered. It is "widespread, very serious, and in much higher concentrations in Roundup Ready (RR) soybeans and corn," he wrote. He appealed to the secretary for help with resources and

research capability.

The letter unleashed a storm of alarm and denial, and as Huber tells below, the USDA is looking into the matter despite its recent ill-advised approval of genetically modified alfalfa.

We asked him to comment on his recent letter (see pages 54-55) and share his own thoughts and opinions on this ubiquitous farm chemical.

[Read Complete interview with Prof. Huber](#) (pdf)

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