

## Industry Studies on GMOs Are Often Flawed by Design and Fail to Reveal Effects



A 2011 published paper in the journal *Food Policy* showed how financial or professional conflicts of interest influence outcomes of peer-reviewed articles on the health risks or nutritional value of genetically modified foods. This comes as no surprise to independent researchers who, for years, have pointed out how industry-funded research is often designed specifically to force a conclusion of safety.<sup>1</sup>

- When Aventis prepared samples to see if the potential allergen in StarLink corn remained intact after cooking, instead of using the standard 30-minute treatment, they heated corn for two hours.<sup>2</sup>
- To demonstrate that injections of their GM bovine growth hormone did not interfere with cow's fertility, Monsanto apparently added cows to the study that were pregnant prior to injection.<sup>3</sup>
- To show that pasteurization destroyed bovine growth hormone in milk from treated cows, scientists pasteurized the milk 120 times longer than normal. Unable to destroy more than 19%, they then spiked the milk with a huge amount of the hormone and repeated the long pasteurization, destroying 90%.<sup>4</sup> (The FDA reported that pasteurization destroys 90% of the hormone.<sup>5</sup>)
- To prove that protein from GM crops breaks down quickly during digestion, biotech companies used a much stronger acid and thousands of times the amount of digestive enzymes recommended by the WHO.<sup>6</sup>



- When a 1999 study showed that GM soy contains 12%-14% less cancer-fighting phytoestrogens, Monsanto responded with its own study, concluding that soy's phytoestrogen levels vary too much to even carry out a statistical analysis. Researchers failed to disclose, however, that they had instructed the laboratory to use an obsolete method of detection—one that was prone to high variability.<sup>7</sup>
- The levels of certain nutritional components in Monsanto's high lysine corn were far outside the usual range for corn. Instead of using normal corn as their control group, they used obscure varieties that were also substantially outside the normal range on precisely these values. Thus, their study found no statistical differences by design. Monsanto also told Australian regulators that the added protein in their high lysine GM corn is found in soil; therefore it has a history of safe consumption since people ingest soil residues on fruits and vegetables. Based on the amount of this protein an average US male would consume if all their corn were Monsanto's variety, "for equivalent exposure" of the protein from soil "people would have to eat . . . nearly as much as 10,000 kg [every] second 24 hours a day seven days a week."<sup>8</sup>
- Field tests of Monsanto's GM bentgrass in 2003 contaminated natural grass at least 13 miles away. The contamination continues in the area.<sup>9</sup>
- Even a rumor that GM papaya was stolen from a Thailand field trial interrupted sales to European markets in 2004.<sup>10</sup>

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### Other methods used to hide problems are varied and plentiful. For example, researchers:

- Use highly variable animal starting weights to hinder detection of food-related changes
- Keep feeding studies short to miss long-term impacts
- Test effects of Roundup Ready soybeans that have not been sprayed with Roundup
- Avoid feeding animals the actual GM crop, but give them instead a single dose of the GM protein that was produced inside GM bacteria
- Use too few subjects to derive statistically significant results
- Use poor statistical methods or simply leave out essential methods, data, or statistics
- Use irrelevant control groups, and employ insensitive evaluation techniques

### References:

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- Photos from: <http://www.dreamstime.com>

### Roundup Ready Soybeans: Case Study of Flawed Research

Monsanto's 1996 *Journal of Nutrition* studies on Roundup Ready soybeans<sup>11,12</sup>, have been used often by the industry as validation for safety claims. Independent experts, however, published critiques exposing how the research design was invalid. In the animal study, they used mature animals, not young sensitive ones, didn't weigh the organs, and diluted their GM soy 6, 10, and 12-fold.<sup>13</sup> The "level of the GM soy was too low, and would probably ensure that any possible undesirable GM effects did not occur." Also, the percentage of protein in the study was "artificially too high." This "would almost certainly mask, or at least effectively reduce, any possible effect of the [GM soy]." It was "highly likely that all GM effects would have been diluted out."<sup>14</sup>

Monsanto's compositional studies pooled data from several locations, making it difficult for differences to be statistically significant. In the only field trial that had side-by-side data, Monsanto mysteriously omitted the results. Years later, a medical writer recovered and published the missing data, which showed that GM soy had significantly lower levels of protein, a fatty acid, and phenylalanine. Also, toasted GM soy meal contained nearly twice the amount of a lectin—an anti-nutrient, and as much as seven times the amount of trypsin inhibitor—a known allergen.<sup>15</sup>