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## Celiac Disease Foundation, plant geneticist, challenge report linking GMOs to celiac disease, gluten sensitivity

By Maggie Hennessy, 03-Dec-2013

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**A controversial new report alleging that genetically engineered foods could be an environmental trigger for gluten sensitivity and celiac disease has been challenged by the Celiac Disease Foundation and a leading plant geneticist.**

The report, published last week by the Institute for Responsible Technology (IRT), was "speculative," Celiac Disease Foundation CEO Marilyn Geller told FoodNavigator-USA.

*"There has been no scientific evidence put forward for a GMO/celiac disease link that is supported by the CDF Medical Advisory Board."*

Meanwhile, plant geneticist Dr. Wayne Parrott - professor of crop science at the University of Georgia - claimed the report relied on "a handful of deeply flawed" studies and did not reference the "more than 1,000 studies that have been published in refereed journals and which show that GM crops are as safe as their counterparts."

**IRT: There have been no clinical human feeding trials on genetically engineered foods**

Citing U.S. Dept. of Agriculture data, Environmental Protection Act records, medical journal reviews and international research, the authors of the IRT report claim that a growing body of research suggests that exposure of the U.S. population to environmental toxins and other food allergens could be triggering or exacerbating gluten-related disorders such as celiac disease and gluten sensitivity.

*"Although the safety research conducted on genetically engineered foods is rather scarce, there are repeated patterns of disorders afflicting lab animals,"* Jeffrey M. Smith, executive director at IRT, told FoodNavigator-USA.

*"It is relevant that the same conditions identified in lab animals fed GMOs or exposed to glyphosate [the active ingredient in Roundup] are on the rise in the US population since GMOs were introduced."*

Although wheat has been hybridized over the years, it is not genetically modified, which is a laboratory process that inserts genetic material into plant DNA.

Currently, the nine GMO food crops being grown for commercial use are soy, corn, cotton (oil), canola (oil), sugar from sugar beets, zucchini, yellow squash, Hawaiian papaya and alfalfa.

Most GMOs are engineered to tolerate a weed killer known as glyphosate (the active ingredient in Roundup); and crops contain high levels of this toxin at harvest. Corn and cotton varieties are also engineered to produce an insecticide called Bt-toxin, which kills insects by poking holes in the cell walls of their digestive tract.

The study focuses primarily on these two toxins.

**Levels of glyphosate exposure required are highly unrealistic**

Citing studies using poultry and cows, the IRT report claims that glyphosate is known to kill beneficial gut bacteria, but not pathogenic varieties such as E. coli, salmonella, and botulism. This can create overgrowth of harmful gut bacteria in the intestines, which can produce a substance that can create gaps in the junction between cells along the intestinal wall and allow the contents of the intestines to enter the bloodstream—also known as permeable or "leaky" gut, which is frequently seen in gluten-sensitive patients, it claims.

But Dr. Parrott said the amount of glyphosate required to alter gut bacteria as claimed by Smith would be at "a level thousands of times higher than will eventually end up as residues in the food supply. The levels Smith cites are not 'minimal' by any measure," he said.

*"Smith goes on to cite a study claiming that glyphosate alters retinoic acid metabolism. According to the study cited, glyphosate does indeed alter retinoic acid metabolism, if the stuff gets injected straight into an embryo. The mode of exposure is so unrealistic that table salt, aspirin or just about anything could probably give similar results. Last but not least, the description by Smith of 'GMOs soaked with glyphosate' is a blatant distortion of the facts,"* he added.

The IRT report also noted that recent peer-reviewed studies have shown that the Bt-toxin may poke holes in

human cells creating a mechanism for leaky gut, though previously it was suggested that the toxin had no motive action on humans or animals.

But Dr. Parrot noted that toxicity symptoms only show up if one adds pure Bt protein to naked cells in a culture dish, according to the study cited by Smith. *"Aside from the fact that just about any protein would be expected to have the same effect, given the exposure is very unrealistic to anything that could happen in real life, the study never showed the effect observed was due to punctured cells."*

Moreover, Dr. Parrott noted that Smith admitted that the presence of Bt is limited to corn chips, tortillas, and corn products, which collectively do not constitute a major dietary item.

Not only that, but *"he claims the Bt protein is found in the blood of pregnant women and their fetuses"*, said Dr Parrott. *"These claims were made by a deeply flawed study that tested blood using a test NOT designed for blood (and which subsequently counts some blood proteins as Bt proteins) and which nevertheless found levels lower than the test is able to find."*

### **Cause-effect yet to be determined**

The IRT report's authors concede that there is insufficient research to prove that GMO consumption causes gluten sensitivity (nor the level of exposure that could result in certain conditions), though a growing stable of research purports that it may exacerbate symptoms or lead to the development of gluten sensitivity, they allege.

*"There have been no clinical human feeding trials on genetically engineered foods. As such, it's not possible to determine a level of exposure associated with a particular condition,"* Smith said.

*"On the other hand, thousands of physicians are now prescribing non-GMO diets to their patients, and millions are seeking to avoid GMOs on a daily basis. Based on testimonials and descriptions of case studies by healthcare practitioners, we have seen consistent rapid alleviation of numerous symptoms soon after people remove GMOs from their diet."*

But CDF's Geller noted that the majority of patients with celiac disease see their symptoms resolve on a gluten-free diet.

*"I would expect that a number of these patients are consuming GMO-based foods,"* she added. *"Based upon the summary explanation, these patients would still be symptomatic."*

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