



**A Grain of Truth: The Gluten Summit  
Presenter: Jeffrey Smith**

**OMG – GMO and Its Connection to Gluten**

**Dr. O'Bryan:** Hello, everyone! Welcome to another edition of A Grain of Truth: The Gluten eSummit. I'm honored to be here today with none other than Jeffrey Smith, the leading consumer advocate promoting healthier non-GMO choices in our food chain today.

Jeffrey is the author of *Seeds of Deception: Exposing Industry and Government Lies About the Safety of the Genetically Engineered Foods You're Eating*, which masterfully combines the art of storytelling and investigative reporting. His second book, *Genetic Roulette: The Documented Health Risks of Genetically Engineered Foods*, is the authoritative work on GMO health dangers, and expertly summarizes why GMO foods must urgently become our nation's top food safety priority.

Jeffrey has counseled leaders from every continent, campaigned to end the use of genetically engineered bovine growth hormone, and influenced the first state laws in the United States regulating GMOs. An admired keynote speaker around the globe, Jeffrey has been described as a "life-changer." He has lectured in 30 countries and has been quoted by world leaders and hundreds of media outlets. He is also a popular guest on influential radio shows and television programs, such as the *BBC*, *NPR*, *Fox News*, *Democracy Now* and *The Dr. Oz Show*.

Former US National Institutes of Health scientist Candace Pert describes Jeffrey as "the leading world expert in the understanding and communication of the health issues surrounding genetically modified foods."

Jeffrey has united leaders to support the Campaign for Healthier Eating in America, a revolutionary industry and consumer movement to remove GMOs from the US food supply. He is the executive director of the Institute for Responsible Technology and producer of the films *Hidden Dangers in Kids' Meals* and *Your Milk on Drugs: Just Say No!* He writes an internationally-syndicated column, "Spilling the Beans," and has a regular blog on the popular *Huffington Post*.

Jeffrey, thank you so much for joining us today!

**Jeffrey Smith:** I'm so glad to be here!

**Dr. O'Bryan:** Thank you, thank you.



There are some experts and some doctors who are saying that the reason that celiac disease and gluten-sensitivity is so much more prevalent now than 30 or 40 years ago [2:30] is because we have genetically modified wheat. Others are saying that the wheat is not genetically modified, but that it's hybridized. What's the actual truth about that?

**Jeffrey Smith:** It kind of depends on your definition of "genetically modified." And, people have two definitions. So, my definition of genetically modified is when you take the gene from one species, typically, and you force it into the DNA of other species. And, the wheat is currently not genetically modified or genetically engineered with that definition. It is selectively bred to bring out certain traits. So, they use sexual reproduction, which is what is natural and not this method in a laboratory of pulling a gene out of one thing and forcing it into something else.

**Dr. O'Bryan:** And, what's the benefit of selective breeding in terms of wheat? Why are they doing that?

**Jeffrey Smith:** Well, I'm going to let you tell me why we have a different wheat in the United States than we did before because selective breeding is not my area of expertise. But, in general, what happens is you have certain traits that you're trying to produce. Maybe you want wheat that tastes better, that holds a different mouth feel, that rises in a different way. And, then, you have other wheat that is high-yielding or drought-tolerant.

So, what happens is the farmers with the bakers, they'll pick the best traits. And, then, they'll also mix and match them and cross them in hopes to get a wheat that has the best of both worlds.

**Dr. O'Bryan:** So, the breads are lighter. They rise more. The muffins are lighter, and they use less flour to make them. And, that's some of the traits that they look for?

**Jeffrey Smith:** Right. Now, people have been thinking that wheat is genetically engineered in my world, and that's not the case. In fact, Monsanto wants to introduce a genetically engineered wheat that's engineered not to die when sprayed with Roundup herbicide. So, it will be called Roundup-ready wheat. There's already Roundup-ready soy, corn, cotton, canola, sugar beets, and alfalfa. They're all drenched with Roundup.

And, they store a portion of that Roundup in the food portion, which we eat. So, we get a heavy dose of Monsanto's herbicide in every bite. And, they want to genetically engineer wheat to do that. And, they also want a genetically engineered wheat to do a number of things. And, we consider that extremely dangerous.

However, our [5:00] concept is that genetic engineering, even though wheat is not yet genetically engineered, these other products that I've already mentioned are. And, we



believe that they're changing the physiology in such a way that people become more reactive to wheat, to gluten, to a number of things.

And, so, what I'm interested in very much in your expertise in gluten-sensitivity and celiac disease is to compare notes because I've been looking at--with physicians and scientists--certain disease states and disorders that are linked to GMOs that seem to fit hand-in-glove with your world.

**Dr. O'Bryan:** What are some of the impacts in the intestines that you've seen in the literature from some of these other GMO foods?

**Jeffrey Smith:** All right. So, there's two major categories of GMOs. There's those that are designed to be sprayed with herbicide like Roundup-ready. We talked about that. And, the other one are those that are designed to produce their own toxic insecticide. And, the toxic insecticide, which kills bugs--it breaks open their stomach and kills them--is called Bt toxin.

It comes from soil bacteria. So, you take the gene out the bacterium that normally is used as a spray in a natural--even by organic farmers--where it washes off and biodegrades. But, it kills certain insects while it's active. They take that gene and put it into corn and cotton plants so the plants become registered pesticides, the plants do the killing.

**Dr. O'Bryan:** So, as the plants grow, they've got more of this Bt toxin in them?

**Jeffrey Smith:** Yes, every single cell of the plant has like a gene-sized spray bottle, right? So, that if you are a bug and you bite the plant, then you die because it will poke little holes, pores, in your intestinal or your stomach wall and cause permeability and destroy the integrity of your gut, and you'll be a dead bug.

**Dr. O'Bryan:** Wait a minute. Wait a minute. So, you're saying that the Bt toxin that's in GMO foods, if a bug bites into that, it will cause intestinal permeability--

**Jeffrey Smith:** Yes.

**Dr. O'Bryan:** --which allows bacteria and other molecules--macromolecules--to get into the bloodstream, and eventually kills the bug?

**Jeffrey Smith:** In fact, there was a study done with insects where they first killed all of the gut bacteria in six types of insects. Five of the six did not die [7:30] when they were fed Bt toxin. But, they all died when their gut bacteria was intact. So, they calculated and concluded that the normal benign gut bacteria--



**Dr. O'Bryan:** The good guys. The good bacteria.

**Jeffrey Smith:** --the good guys, yes!--when it gets through the cell walls and gets out of the stomach into what's the insect's "bloodstream", then it becomes pathogenic. It becomes disease-creating. It becomes deadly, essentially. And, so, somehow in the insects, the gut bacteria, along with these holes that get punctured into the walls, work together to kill the insects.

Now, the biotech industry and the Environmental Protection Agency swore up and down that the Bt toxin is safe because it will only interact with certain insects and not with humans or mammals. However, in the *Journal of Applied Toxicology* in 2012, this was overturned. They took the Bt toxin out of a corn plant that was genetically engineered, applied it to human cells, and it poked small holes in the human cells, causing leakage.

And, the author said, "Like in insect cells." In other words, the same mechanism that kills insects was poking holes in human cells. And, the Environmental Protection Agency and the biotech industry have also said, "Don't worry about Bt toxin because it's destroyed completely in the stomach, in the digestive process, where it's totally broken down or it becomes ineffective."

This was overturned in 2011 in Sherbrooke University Hospital. Doctors, they took blood from pregnant women and regular women. And, they found that the Bt toxin was in the blood in 93% of the pregnant women and about two-thirds of the non-pregnant women. And, for the pregnant women, the Bt toxin was in the cord blood. It was in the fetuses.

So, it survived digestion through the stomach, got into their blood, possibly through the holes that it created, and now we have a hole-poking toxin in the blood of humans and in unborn fetuses where, of course, it might end up in the brain because the blood-brain barrier is not well developed. And, that could possibly cause developmental problems.

**Dr. O'Bryan:** Might that be one of the contributors to the increased incidence of autism that we're seeing now, is if the mother's blood has this toxin? You're saying 90% of the pregnant women that were screened had this Bt toxin in their bloodstream. And, it was in the fetal blood [10:00] going into the developing baby. And, the developing baby's brain is not developed yet, so it doesn't have that barrier around it called the blood-brain barrier. Might that be part of the mechanism that's causing the damage to these children's brain?

**Jeffrey Smith:** Huge question, no answer. But, I do have a little site, a microsite, at [responsibletechnology.org/autism](http://responsibletechnology.org/autism) where we have an article linking some of these dangers that we'll talk about in terms of gluten, with autism: the leaky gut, the gastrointestinal disorders, the decreased digestive capacity, the gut bacteria dysbiosis, the immune system problems. And, also what we've seen in terms of animal



psychology, when the animals get violent or anti-social or irritated and what not, when they're on GMOs, compared to when they're not on GMOs. And, the experience of people who've taken their kids off of GMOs and found that their behavior improves or their gastrointestinal problems improve. But, that's another story. So, yes, it's certainly possible!

Coming back to the question, your first question, though, was what are the gastrointestinal disorders that may be linked to GMOs? And, so the first one we're looking at is it's possible that the Bt toxin poking holes in human cells might cause increased gut permeability. And, to make matters worse, one of the only human feeding studies ever done on GMOs found that genes can transfer from a genetically modified crop into the DNA of gut bacteria and it might continue to function.

Now, what this means is, if you missed that sentence and it went by very quickly, if you eat a corn chip that is made from corn that produces this Bt toxin, it has the gene that produces the toxin in the corn. If that gene ends up in your gut bacteria, transferring into gut bacteria that live inside your intestines, and if it continues to function once it's there, it means it's now producing the Bt toxin 24/7. It may do that. We don't know.

Now, this might explain why 93% of the pregnant women tested had the Bt toxin in their blood, because the authors and everyone suggests that the Bt toxin would wash out quickly. If it washes out quickly, how could 9 out of 10 Canadians that don't eat corn tortillas every day have that **[12:30]** much Bt toxin?

The author suspected maybe it was eating the animals like the pigs and cows that eat the Bt corn, and maybe that's where they got the Bt toxin. I think a more plausible explanation is that their own gut bacteria were producing the Bt toxin, that they actually had living pesticide factories in their bodies that had been converted by the corn tortillas and corn chips that they had eaten in the past.

**Dr. O'Bryan:** As the listeners of our summit have already heard in past interviews, celiac disease children, 39% of them have bacteria in their intestines, 18% percent of that bacteria has never been identified in humans. Might this be the mechanism? Because we don't know how that bacteria got there, where it comes from, or what to do about it.

And, these are questions that are unanswered. But, our listeners, they need to know this. Where is that bacteria coming from that are in celiac kids? One-third of celiac kids have this bacteria. Thirty-nine percent of the children have this bacteria that are not supposed to be in the intestines. And, 18% of that bacteria has never been identified in humans before.



**Jeffrey Smith:** You know this is the first I've heard of it. So, I don't have a ready answer. I don't know if bacteria can flow between the bloodstream or between organs into the digestive system. I don't know if it goes both ways. But, there's another aspect of gut bacteria that's related to GMOs, which could help explain this.

Roundup, which is used on Roundup-ready crops, which is the most popular category of GMOs...Roundup is produced by Monsanto as the most popular weed killer. Roundup-ready crops are produced by Monsanto in the seed form. And, the Roundup's active ingredient is called glyphosate. Now, glyphosate is an antibiotic. It's a broad-spectrum antibiotic. And, it's selective. It kills the beneficial gut bacteria, but not the E. coli, salmonella, and botulism bacteria.

They find that in poultry and cows, it creates a big disbiosis, a big imbalance in the [15:00] bacteria. And, they're blaming this Roundup or glyphosate, for example, for an epidemic of botulism because, botulism is found everywhere. But, it's usually controlled. The bacterium that produces the botulism is normally held in check by beneficial bacteria.

**Dr. O'Bryan:** By the good guys! The vast majority of the army in our intestines that's there to protect us keeps the invaders at a very small concentration.

**Jeffrey Smith:** So, if you kill off the army, the invaders come in. And, so, you have overgrowth of the botulism and the bot toxin, which is related to death in cows. But, it's also related to sudden death syndrome. And, then, if you end up with a gut bacteria overgrowth, of negative gut bacteria, that, I'm told, is related to celiacs and gluten sensitivity. But, also, it can create irritants that can promote the leaky gut.

**Dr. O'Bryan:** That's exactly right!

**Jeffrey Smith:** And, then it also, when you kill off the good gut bacteria, like the bifidus, you end up, the bifidus helps suppress the inflammation. So, if you take out the bifidus, then you have potentially more inflammation. You have the overgrowth of the gut bacteria. And then you have one other thing, which we haven't talked about.

And, that is, if you end up with a suppressed digestive capacity, which we think GMOs can also contribute to, then you have all this excess undigested proteins hanging around that putrefy, which then create gas, which can also feed the gut bacteria, which creates even more bigger overgrowth, which can then lead to more leaky gut, the leaky gut that allows all these undigested food proteins in there, which can create inflammation, autoimmune disease, food allergies, and who knows what? It's also linked to autism and cancer and what not.



So, here's that missing piece. How can GMOs reduce capacity for digestion? Two ways: one is by causing a problem with the gut bacteria, which we talked about. Gut bacteria are involved in digestion. They convert things into more assimilable levels. They help produce vitamin K, etcetera, etcetera.

**Dr. O'Bryan:** For our listening audience, here's one example of that. And, that is butyrate, which is the fuel for the cells in our intestines to build new cells, the fastest growing cells in your body, the inside lining of the intestines. It's like the snake of a skin. Every three to seven days you have the new lining to [17:30] the cells of your intestines. The fuel to build those cells is butyrate. And, butyrate or butyric acid--the same thing--is produced by the action of the good bacteria on vegetable fiber.

So, if you don't have enough of the good bacteria, you don't produce enough butyrate, and then your cells, when you're reproducing cells, your body builds your house out of straw instead of brick. And, you have a much higher risk of colon cancer. That's why a number of studies have shown low butyrate levels are associated with the development of colon cancer.

**Jeffrey Smith:** Mmm. So, the other way that GMOs might impact digestive capacity is by reducing digestive enzymes. Now, there's very few studies on GMOs, unfortunately. And, that's a whole other story as to why that happens, but--

**Dr. O'Bryan:** Do you mean with few studies with GMOs and the impact on digestive enzymes?

**Jeffrey Smith:** On anything on terms of health and safety. You see, the FDA--I'll insert it here--the FDA said, "No safety studies are necessary, whatsoever. You can put a GMO on the market without even telling the FDA or consumers." And, this was because the person who is in charge of policy at the FDA when the GMO policy was created, completely lied about--or at least the policy lied--about the actual opinions of the scientists of the agency. They were warning their superiors over and over again, "GMOs might create allergies, toxins, new diseases, nutritional problems. We need to have long-term tests, human tests."

And, the policy lied and said, "We're not aware of any information showing that GMOs are significantly different. Therefore, no safety studies are needed and no labeling is needed." The person in charge of policy was Monsanto's former attorney, Michael Taylor. They created a new position specifically for him after the White House instructed the FDA to promote bio-technology.

After, he shepherded in this hands-off policy on GMOs, he then became Monsanto's chief lobbyist and vice president. Then, he went back to the FDA where he is now installed as the US food safety czar.



**Dr. O'Bryan:** Currently?

**Jeffrey Smith:** Currently, in the Obama Administration. So, we have a situation now where there's very few real safety studies. But, one of them that took place in Italy--

**Dr. O'Bryan:** That's, that's just, [20:00] what?! What?!

**Jeffrey Smith:** Yeah, I should slow down for that one! [Laughs]

**Dr. O'Bryan:** Let me take a moment on that. I've never heard that before.

**Jeffrey Smith:** Oh, yeah.

**Dr. O'Bryan:** Oh, my goodness! That's an example of big business and big government merging.

**Jeffrey Smith:** Yes, it's a captive regulatory agency. It's a revolving door. And, if you think about it from a big perspective, GMOs can affect--if they're negatively impacting our health because they're in our food supply, and soy and corn, which is practically everywhere, and in sugar from sugar beets--it could affect everyone who eats because it's released into the environment, it self-propagates the genetic pollution of the gene pool, stays there forever. It could affect all living beings and all future generations. You would think they would have exhausted every single doubt before doing this unprecedented move of growing a GMO outdoors and even putting it in the food supply!

**Dr. O'Bryan:** Yes!

**Jeffrey Smith:** They did exactly the opposite! They put it out there when there was all these doubts, when the overwhelming consensus among the scientists working at the FDA were that GMOs were different and dangerous. And, they let the fox guard the henhouse. And, now GMOs are on the market. And, most of the fundamental assumptions that were used as the basis for approvals--"Oh, it won't do this. It won't do this"--have been proven wrong.

In fact, the American Academy of Environmental Medicine looked at those few animal feeding studies that have been done and said, "There is so much evidence of harm in these animals that are fed GMOs, it's causal. Every doctor should prescribe non-GMO diets. The government should withdraw them." But, this was ignored by the government, of course, which is marching lock step with Monsanto, still.

**Dr. O'Bryan:** My goodness!



**Jeffrey Smith:** So, getting back to these few studies, we have to sort of be detectives and pull out as much information as we can and look at epidemiological evidence, and livestock evidence, and human evidence to put it all together because we don't have the 40,000 studies that should have been done like in so many other areas. We have a handful.

And, one of the handfuls shows mice that were fed genetically modified soybeans for eight months. And, they had damage to their testicle cells and their pancreatic cells and their liver cells. And, when you look in the pancreas, it was producing a reduction of enzymes--starch-reduction producing enzymes, alpha-amylase--by as much as 77% in two-month-old mice. And, it also reduced the digestive enzymes that digest protein, [22:30] the zymogen granules, for example. And, this means that we may be leaving the proteins in the body longer than normal because they're not being attacked and digested by the protease or the protein-digesting enzymes.

Also, Monsanto's soybean, in their own study, which they tried to hide...It was discovered in the archives of the *Journal*. It's like, "Why did you leave this data out?" Now, we know! In their own soy beans, there was as much as a seven-fold increase in trypsin inhibitor. Now, trypsin is very important in digestion. And, if you have up to a seven-fold increase in something that inhibits trypsin, you could also interfere with the digestive capacity or capability of the intestines.

**Dr. O'Bryan:** So the body would reduce its production of trypsin. It would make less, so we'd be less able to digest our meats, our proteins when we're eating them. And, that's like leaving a piece of steak out on the table for three days.

**Jeffrey Smith:** Right.

**Dr. O'Bryan:** And so one of the results of that may be in our intestines, we get more bloating. We get more gas. And, the gas may have a smell to it. That's the kind of marker that our audience needs to know about is that if your children, or if you, mom or dad, yourself, have gas at times, and the gas has a smell to it, that means proteins are putrefying. That means they're not being digested and broken down efficiently so we can get the building blocks absorbed to rebuild our own muscles and bones and things. It's putrefying! And, this may be one of the mechanisms that's contributing to that.

**Jeffrey Smith:** Now, before we get out into the other major area of immune system problems with GMOs, I want to relate to this thesis using case studies. I've been asking audiences and doctors, visiting doctors' offices, "What happens to patients when they stop eating GMOs?" They're prescribed non-GMO diets now by thousands of practitioners. And, one of the big categories is gastrointestinal disorders, some of them go away completely!



**Dr. O'Bryan:** And, what do you mean by gastrointestinal disorders?

**Jeffrey Smith:** Okay. Inflammatory bowel, irritable bowel, Crohn's disease, diarrhea, constipation. And, these we hear from patients. I went to one doctor's office. She'd been on a [25:00] non-GMO diet for 25 days. And, three days into it, her Crohn's disease symptoms disappeared. She had Crohn's disease for 30 years.

And, I talked to another person, she had irritable bowel. And, she was prescribed six pills a day for the rest of her life. Six to eight weeks later she didn't need the pills anymore. Someone else got rid of their IBS in three weeks. When I ask audiences--and I've asked them in maybe 50 to 100 different audiences in the last year--"How many of you have felt better as a result of switching to a non-GMO diet?" And, I ask people what symptoms they got better from, every single audience says gastrointestinal problems: bloating, gas, gut pain, and constipation, diarrhea, etcetera.

**Dr. O'Bryan:** Every audience?!

**Jeffrey Smith:** Every single audience. Every audience!

And, if you look at the list of disorders that The American Academy of Environmental Medicine found in the lab animals fed GMOs, gastrointestinal is one of them. If you look at livestock who've been taken off of GMOs...And, it's a much better indicator than humans for two reasons. One, they're eating a lot more of the GMO, a lot more GM corn, a lot more GM soy. And, two, when you take GMO soy out of an animal's diet, you can substitute non-GM soy or non-GM corn. So, you're not even changing much of the diet. The only change is GM to non-GM. So, there's no pesky co-factors like removing gluten at the same time or removing whatever.

And, the animals switched to [non-GM diets], I mean the reports are amazing. Diarrhea disappearing in two days when there was massive problems with diarrhea that was fatal. Ulcers that were killing animals disappearing completely. All sorts of gastrointestinal problems, as well as, of course, immune system strength, which we'll talk about next.

**Dr. O'Bryan:** Because the body wants to heal! And, when we stop throwing in what it sounds like may be an offensive agent to that animal or to that person, those symptoms go away. And, the body heals stronger, healthier tissue. But, if we keep exposing ourselves to the same irritant, we continue for our system to be irritated.

**Jeffrey Smith:** Right! Now, we talked about the gastrointestinal problems associated with GMOs, the inflammatory bowel, inflammatory gastrointestinal disorders. We've talked about humans getting better when they switch to non-GMO diets in that area, animals getting better.



Now, there's two other things. [27:30] We've already talked about how the Bt toxin might be causing irritants up and down. But there's also the fact that when GMOs were introduced, if you look at the charts, that's when it exploded, the gastrointestinal disorders going through the roof in these areas. And, you can look at scientific correlations of inflammatory bowel, colitis, all these things, and find that it's very, very close.

And, there's one other thing about digestive capacity, which may be reduced because of the Bt toxin. They did a study where they took natural Bt as well as Bt potatoes, which are not on the market--it was just experimental--fed it to mice, then cut open the ileum, or part of the small intestine. And, they found that the microvilli were, in some cases, cut short, they were fragmented, or there were less of them. So, some were eliminated--

**Dr. O'Bryan:** So, that's villous atrophy. And, our audience is very familiar with the concept of the intestines are lined with shag carpeting. And, celiac disease is when the shags wear down and you have berber. So, it could be anywhere on that spectrum from full microvilli to no microvilli. And, you're saying that the types of foods we eat may be contributing to the same type of condition that gluten does if they are GMO foods?

**Jeffrey Smith:** Exactly! And, that's the Bt. See, we have two different toxins to deal with. We have the Bt toxin, which can poke holes in human cells. And, we have the Roundup-ready crops, which have this Roundup toxin that's drenched in our food. And, both of them compete for being nastier. One kills the gut bacteria and the other pokes holes in human cells. And both may impact the immune system.

So, with the Bt toxin, when they have fed it to mice or looked at farm workers who use the natural Bt spray, or they looked at mice that had been fed the Bt corn, they all had immune system reactions, significant ones, especially among the young for the mice and also among the old, the most vulnerable populations.

And, so, this Bt toxin appears to be an allergen. And, so, if it's being consumed in corn, then it could be triggering immune responses, increasing the immune load so that people [30:00] are reacting more and more to our food, so that they become possibility more sensitive to other things. Now, the Bt toxin, when exposed to mice, the mice also became sensitive to formerly harmless compounds. So it had what's called an adjuvant response, meaning you feed Bt toxin, they not only react to the Bt toxin, but now they're reacting to other stuff.

So, if we look at the food allergies in the United States, since GMOs were introduced, they're skyrocketing. And, so, it doesn't have to be just allergies to soy and corn. It could be allergies to anything, that have been facilitated by this adjuvant action.



**Dr. O'Bryan:** Well, our audience has heard already from a number of practitioners that when you have intestinal permeability--in previous discussions--caused by exposure to gluten, you get these gaps in the intestinal wall. And you get these larger molecules called macromolecules getting into the bloodstream before there's been enough time for them to be digested and broken down into small molecules. So, you get these big molecules going into the bloodstream. The immune system says, "Whoa, what's this? This is not good for me. I'd better fight this." And, you start making antibodies to tomatoes, or to avocado, or to beef, or bananas. And that's the adjuvant response because of the intestinal permeability caused by gluten, and now we're hearing possibly caused by GMO foods.

**Jeffrey Smith:** Right.

**Dr. O'Bryan:** Jeffrey, what this explains for me, I've had many, many patients over the years. We run stool analyses on these patients. We see that they have abnormal flora. We want to get rid of the bad guys, and they don't have enough of the good guys, and we want to replenish those. And, the vast majority of the time I do not get--and it may be my clinical skills--but, I do not get on the re-checks of the stool analysis just abundant, thriving good bacteria of all the good bacteria that should be there. I don't see that.

I see that we can make some benefits if we get rid of the bad guys. I know how to do that very easily. But, I don't see all of the good guys coming back in abundance and thriving. And you've just explained to me one of the reasons why that may be is that I'm not putting them on GMO-free foods.

**Jeffrey Smith:** Right. And the thing is, unfortunately, glyphosate, which kills the beneficial gut bacteria, which is drenched in GMO foods, is also sprayed on grains [32:30] before harvest: wheat, rye, barley, lentils. Now, it's going to be used for citrus, sweet potatoes. So, fruits and vegetables, and grains are being sprayed with Roundup or its active ingredient glyphosate to dry down the crops to make harvest easy and more uniform.

And, what happens when you spray, it doesn't just stay on the surface. It has a surfactant, which allows the Roundup or the glyphosate to penetrate in. And, then it gets stored in the fast-growing sections of the crop. And, as it gets close to harvest time, that's the only place that it goes to, is the food portion, which we eat.

**Dr. O'Bryan:** So, this is not GMO lentils? These are non-GMO lentils. But, they've been sprayed?

**Jeffrey Smith:** Yes!



**Dr. O'Bryan:** So, that, then would suggest that our people would want, whenever they can, get non-GMO organic?

**Jeffrey Smith:** Organic. Now, organic means non-GMO in its definition. We also recommend getting products that are verified as non-GMO by the Non-GMO Project. And, there's over ten thousand of them. And, they're listed by category on our website at [nongmoshoppingguide.com](http://nongmoshoppingguide.com). But, this is a particular problem now because the Environmental Protection Agency of the United States just increased the allowable residues on fruits and vegetables and grains by as much as 30 times. And, I'm told that the level that's now acceptable in fruits and vegetables and grains is about a million times more than the level which is linked to damage from Roundup.

**Dr. O'Bryan:** Oh, my goodness!

**Jeffrey Smith:** So, it's very, very serious. Now, we've talked about the digestive problems. We've talked about the immune system problems. Roundup or glyphosate also has two other issues. One is it's an endocrine disrupter.

**Dr. O'Bryan:** That's hormones.

**Jeffrey Smith:** Yes!

**Dr. O'Bryan:** That's hormones.

**Jeffrey Smith:** So, I don't understand what possible hormonal changes can affect gluten-sensitive people. That's your area. I can just tell you that the aromatase, which is the basis for estrogen and testosterone, that gets disrupted through the glyphosate or the Roundup. Animals that were fed Roundup [35:00] had, the females had more testosterone and the males had more estrogen. So, it was an inverse. They were feminizing the males and virilizing the females, which I'm told is a big problem in humans at this point in terms of hormone levels. So, that's one issue. I don't know if it relates at all to gluten sensitivity.

**Dr. O'Bryan:** Well, if an individual has a hormone-related problem with gluten sensitivity, the vast majority of the time when they go on a gluten-free diet, they find that their hormone imbalances start to level off.

**Jeffrey Smith:** Mmm. Interesting! It'll be very interesting to find out if they're going on a gluten-free diet and eat more corn and soy as a result--

**Dr. O'Bryan:** That would be very interesting.



**Jeffrey Smith:** Yes. And, that's, of course, a big danger. And, then the other aspect of Roundup is glyphosate was originally patented as a broad-spectrum chelator, meaning that it binds with trace minerals making them unavailable for digestion and assimilation. And, that means that the food that's genetically engineered, Roundup-ready, it's drenched with Roundup. It becomes nutrient deficient. The animals that eat the Roundup-ready crops, they become nutrient-deficient. We eat the Roundup residues. It can further chelate within us. We can block the availability of certain nutrients.

And, these trace minerals are like keys in locks to certain metabolic pathways. And, many, many diseases can be traced to nutrient deficiencies. And, so, by eating large quantities of Roundup-drenched food, we may be interfering with metabolic pathways that, of course, can affect health and possibly gluten sensitivity.

**Dr. O'Bryan:** So, you're suggesting that it will bind with some of our trace minerals? It'll bind with calcium?

**Jeffrey Smith:** Yes, calcium cobalt, vitamin B12, and manganese which is important for allergies and reproduction, magnesium, etcetera, etcetera.

So, the ones that are in the lowest quantity will probably be the ones that are most at risk. And, it has certain binding factors that are more with certain minerals than others.

**Dr. O'Bryan:** So, even taking our vitamins and minerals, we may be compromising our ability to use them by eating foods that have been sprayed with glyphosate or by eating GMO foods?

**Jeffrey Smith:** Exactly!

**Dr. O'Bryan:** So, we can get more bang for our buck in the long-term with our vitamins and mineral utilization [37:30] if we're eating non-GMO vegetables?

**Jeffrey Smith:** Right, and organic ideally. Now, a lot of these people, when they switch to non-GMO, people do it by switching to all organic. And, when they get better, and, I'm going to tell you, like within days. I mean, one doctor, when I visited her in 2009, she had instructed 5,000 patients to avoid GMOs and said, "Everyone gets better." And, I was like very skeptical. I went to her office, interviewed patients. And, she would say, "Yeah, allergies and asthma, three to five days. Gastrointestinal disorders could take a few weeks. Things can develop and get better over a couple of years." But, she had it down because she was doing so many experiments on humans by giving them non-GMO diets.

But, when you ask them, "What were they doing," many of them were switching to organic or reducing processed foods. And, those introduced co-factors. So, is it the non-



GMO diet? Is it the lack of all these other pesticides on organic? Is it all the additives being taken out? Some of them were getting rid of gluten. Some of them were getting rid of dairy at the same time. All these co-factors.

So, when you look at the livestock who are switched from GM to non-GM and there's no co-factors and you see the same disorders and diseases that are getting better in human beings, it gives us a lot greater confidence. However, I tell people, "If you want to get rid of GMOs just by switching to organic, great! That's the best way because you get rid of all the other problems at the same time.

**Dr. O'Bryan:** You bet! That makes so much sense.

So, Jeffrey, if I'm hearing this correctly, the overview of this is that GMO foods may cause--not that we know for certain they do, but there's enough evidence in animal studies to suggest that it may happen in humans--it may cause knocking out the good bacteria that's there to protect us, allowing the bad bacteria that's usually kept in check by the good bacteria, allowing that bad bacteria to flourish and take over, causing the holes in the intestines that we know as intestinal permeability, which triggers the whole systemic inflammatory cascade that our listeners have heard to from many of the other speakers. It may be that this GMO is impacting on us, at least in those ways, and others. Is that correct?

**Jeffrey Smith:** Yes. Yes, that's right.

**Dr. O'Bryan:** Jeffrey, how can our listeners find out more about this?

**Jeffrey Smith:** Well, soon on our website, and perhaps by the time this airs on your summit, **[40:00]** we're going to have an article, which is basically could genetically engineered foods be promoting the exploding gluten sensitivity? And, it's very well cited. And, we're going to have interviews there. We're going to have materials there, a brochure, eventually, so that people can take the information and then share it with their friends who have celiac disease or some kind of gluten-related intolerance or symptoms.

And, they can try it on their own by avoiding GMOs. And, our website is [responsibletechnology.org](http://responsibletechnology.org). And, if we have a space on gluten, it'll be there on the home page. You'll be able to find it. And, then, we have [nongmoshoppingguide.com](http://nongmoshoppingguide.com) to help people avoid GMOs.

And, we have a film, *Genetic Roulette: The Gamble of Our Lives*, a documentary that I produced in 2012. It got film of the year, movie of the year. And, it got transformational film of the year from a couple of organizations. And, it tends to be sufficient in convincing people to get rid of GMOs. So, if you're not yet convinced from this



conversation, that is available at [geneticroullettemovie.com](http://geneticroullettemovie.com). And, you can rent it online or get the DVD. And, we've found that so many people, millions of people, are actually trying to avoid GMOs, and many of them because they saw that film.

And, just to give you an idea, I've had women, mothers, come up to me since the film was produced and literally start crying when they see me because they say I helped save their children. I mean, it's just amazing to hear the stories about how the allergies that were just horrible and debilitating disappeared or subsided significantly.

One woman in the audience at MIT said her six-and-a-half-year-old was violent and out of control. They wanted to kick him out of school. She saw the film, changed his diet immediately. A month later she had a new son, and had none of those problems. We have parents of autistic sons who've taken their kids off, and the digestive disorders get better, and the behavior gets better.

So, it's very, very compelling. And, it explains the leaky gut. And, it explains some of the things we've been talking about. It doesn't talk about gluten sensitivity directly. But I'll tell you, when I heard this nexus between gut bacteria, leaky gut, digestive capacity, [42:30] and immune triggering in your world, I said, "Wow, we have the same world!"

**Dr. O'Bryan:** Yes, we do!

**Jeffrey Smith:** So, you know, I want to ask if you agree with this? I mean, we don't have enough information to say clearly that GMOs are causing all of this explosion in gluten sensitivity. It remains a question. But, we do have practitioners like Emily Lindner, who says, "Based on my clinical experience, when I remove genetically modified foods as part of the treatment from gluten sensitivity, recovery is faster and more complete." She says, "I believe that genetically engineered organisms in our diet contribute to the rise of gluten sensitivity in the US population."

So, my suggestion is that people who have gluten-related disorders try a non-GMO diet, whether or not they've decided to remove gluten--obviously, you want them to remove gluten right away--but, in any case, to remove GMOs and to let us know what the results have been, especially if there's a dramatic recovery. We want to find out what they did and why. So, we have an email address, [healthy@responsibletechnology.org](mailto:healthy@responsibletechnology.org) for any case study of an individual, their child, their patient, their pet, their horse, their livestock, getting better on a non-GMO diet, converting from GM fed to non-GM fed.

**Dr. O'Bryan:** There is no harm in trying a non-GMO diet. You are not going to lose anything. You may gain tremendous amounts. So, especially when you're doing all of these steps to take care of your health and you're better, but you're not quite on top of your game yet, if I could say it that way, it may be the missing link is GMO foods that are causing the problems that you've heard about today. It will do no harm to try this.



Be an experiment of one, try it for yourself. Or, if you are in a family, try it for your family. Buy organic broccoli. Talk to your husband. Give yourself a month, and say, "Honey, let's try this for a month completely. It will probably cost the same or a few dollars more to do the organic for a month. Let's just try it and see how we all feel." If you just give it a try and you notice a change, let them know at [healthy@responsibletechnology.org](mailto:healthy@responsibletechnology.org). **[45:00]** Let them know!

**Jeffrey Smith:** And, there's only nine genetically modified food crops. They're listed at [nongmoshoppingguide.com](http://nongmoshoppingguide.com). And, there's tips how to avoid them there: the soy, corn, cottonseed oil, canola oil, sugar from sugar beets, the animal feed related to the meat and the milk, including alfalfa, the papaya from Hawaii or China, little zucchini, little crookneck squash.

We talk about bovine growth hormone, the genetically engineered drug. So, if you're convinced to try and avoid GMOs, the best way is to go to [nongmoshoppingguide.com](http://nongmoshoppingguide.com), or download the free iPhone app, Shop No GMO. Hopefully, we'll have it in Android soon, but for iPhone or iPad owners, Shop No GMO.

**Dr. O'Bryan:** Jeffrey, it is an honor to sit here with you and help carry this message out for all of our audience to hear, just to consider this as a potential problem for you and your family. If you consider it, and then you experiment for a month, you might find tremendous changes in your lives.

Jeffrey, thank you very much for taking the time to be with us.

**Jeffrey Smith:** I believe, personally, that GMOs are creating conditions for a whole host of gastrointestinal and immune system disorders. I've only talked about a little bit. I mean, I haven't opened up to what all these other particular diseases that are also related to this nexus of problems. And, I would love to see the gluten-sensitive

community become aware of this issue, make the changes if they confirm these suspicions. And, then it could mean a huge impact on the health of the people suffering from this and preventing so many others from having this malady.

**Dr. O'Bryan:** Absolutely! Thank you again.

**Jeffrey Smith:** You're welcome!



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