

How To Critically Think GMOs Without A Science Background

"DNA from GMOs can pass directly into humans, study confirms"

"GMOs are bad because they are banned in 60+ countries"

"GMO Food Poison Handbook: "Genetically-Modified" Agriculture and Animals"

There isn't a day that I don't see headlines such as these in my social media newsfeed. One particular article, "[Why I Changed My Stance on Eating Organic Food](#)," came across my newsfeed and I noticed the author was a dietitian. When I think of dietitians I think of integrity so I was interested to hear what the author had to say about why she changed her stance on eating organic food. When I finished reading the article, there were a number of "red flags" and knew I needed to do some research on some of her statements.

Even though I am a farmer, I will admit my science background is not very strong. How does one know what is true and what is merely propaganda? I will show you, step-by-step, on how I used critical thinking skills to examine how valid her claims were.

Statement #1:

- "I became a spokesperson for CLIF Bar in Canada, and as their products are at least 70 percent organic, I became better educated about organic farming, seeds, and crops, and their impact on the environment, and on us as the consumer."

RED FLAG moment. Okay, the first thing that comes to mind is if she is a spokesperson, do you think she is getting paid? Probably . . . You think there might be a little bias? I will let you answer that on your own.

Statement #2:

"Corn is used as a pesticide."

*I am still a little confused by this phrase. Corn is not used as a pesticide, but rather, is a grain used for livestock feed, ethanol and human food. It seems to me she is misconstruing the facts and is probably referring to BT (bacillus thuringiensis) corn. I will try to keep this explanation about BT corn as simple as possible--BT is a natural bacteria commonly found in soils and is **NOT** toxic to humans. In fact, I probably have breathed in BT numerous times just by standing outside of my house because we have soil nearby. BT produces a protein that when ingested by certain larva-type insects (such as corn borer, which is very destructive to corn plants) causes death in those insects. BT targets specific insects, not all insects. In fact, organic farmers can use BT as a pesticide for their organic crops. Injected BT is also used in some organic plants. BT corn is genetically engineered by isolating a specific gene that produces the protein (the protein that causes death in insects) and that one gene is placed into the corn plant. This results in a GMO (genetically modified organism)--One gene out of tens of thousands of genes. When the insects start to eat the corn plant, they will ingest the BT protein and die. Only at the time the protein is in the gut of a larva is it considered a pesticide. It has absolutely no effect on humans. In addition, Bt has helped drop organophosphates (which are very bad) by 50%. This is a fact that was conveniently not talked about.*

Statement #3:

"Systemic pesticides have been in the news lately because they're being implicated in the deaths of millions of bees, and when bees die, 75% of the crops we eat don't get pollinated, which is deadly to the plants and to the ecosystem."

Yes, we need to find out what is happening to our bee population. Many suspect neonics (an insecticide applied to seeds) are suspect in bee death and yet there is research to refute those

claims. Neonics has nothing to do with genetically engineered plants although it seems she insinuates it in her article. For a balanced view on the neonics/bees issue, read [Save The Bees, But Not With An All-Out Pesticide Ban](#). The bottom line is we need to keep researching the cause of colony disorder and do what is necessary to protect the bees.

"It has been found that at least 90 per cent of these pesticides don't even go into the crops; they go into the environment: the soil, the water, and the animals who eat the coated seeds, crawl in the contaminated ground, and swim in the contaminated water."

There are many questions that arise from this statement. There is no reference to the source of the 90% statement. What specific pesticides is she talking about? Remember the EPA monitors and would not allow soil or waters to be contaminated to a level that is harmful to humans or animals. On a positive note, this is where GE technology shines because it allows farmers to use less pesticides. Good for humans, animals and the environment.

"Why are these chemicals banned in Europe?"

This is a common question in regards to Europe's position on GE plants. The author has claimed that Europe has banned them and what do they know that we don't? The fact is many European countries have not banned them, but rather, have not approved them. Big difference. GE corn is imported and used in livestock all over Europe. Recently, reports are circulating that Europe is having second thoughts about GE technology and may be allowing farmers to grow them soon.

Dietician promoting pseudoscience.

This is not a statement in the article, but rather an observation from me. The author is clearly not using her critical analysis of research and it reads more as an advertisement. And it makes me feel very uncomfortable. The dietetics regulatory body forbids promoting anything that is not science based. In fact, recently there has been some controversy in the field of dietetics because of large corporations wanting to sponsor dietetic conferences. The group, [Dietitians for Professional Integrity](#), believes the American public deserves nutrition information that is not tainted by food industry interests. Those who co-founded Dietitians for Professional Integrity are nutrition experts first and foremost; they went to school to help people achieve better health (based on research and education) through food, not to help multinational food companies sell . . . Did she violate her integrity? That is for you to determine.

Yes it is a shame that it takes this much effort to read through and decipher with a critical eye an article that should be an honest and educational read. But, unfortunately, this is a downfall of the Internet. Let's just say, **just because you read it on the Internet, does not make it true!** Do your

own research!

Challenge your biases - it's healthy.

When I look at an issue, the first thing I note is where the source originated. Personally, I tend to trust sources from academia and science. And even if it looks like the source is authoritative, I will still investigate to make sure they are a legitimate and credible source. I also ask myself - Is there anything this source has to gain by publishing this information? Do multiple sources say the same thing? Multiple sources add credibility. Don't be afraid to ask questions, no matter how stupid they may sound. These are just a few of the steps I went through as I analyzed this article.

How can you improve your critical thinking skills?

Question your assumptions. All of us make a lot of assumptions about almost everything. It's how our brain processes certain pieces of information, and how we get along in everyday life. You could say they are the foundation of our critical framework. But what if those assumptions turned out to be wrong, or at least not entirely truthful? Then the whole foundation needs to be re-built, from the bottom up.

Don't take information on authority until you've investigated it yourself. Like assumptions, taking information on authority can be useful. Instead of double-checking everything anyone says, we tend to label information as either coming from a trustworthy or not trustworthy source. This keeps us from double-checking every piece of information that comes our way, saving time and energy. But it also keeps us from getting to the bottom of things we perceive as coming from a trustworthy source, even when they don't. Just because it was published in a magazine or broadcast over TV doesn't mean it's necessarily true.

Question things. You've already read about questioning assumptions and questioning authority figures. Now you're about to be told to question...everything? Asking questions is perhaps the quintessential act of critical thinking. If you don't know what questions to ask, or don't ask the questions in the first place, you may as well not get the answer.

Understand your own biases. Human judgment can be subjective, frail, and spiteful. One recent study found that parents who were given corrected information about the safety of vaccines were *less* likely to have their children vaccinated.^[3] Why? The hypothesis is that parents given this information accept that the information is true, but push back people it damages their self-esteem — something that is very important to most people. Understanding what your biases are and where they may affect how you deal with information.

(Compliments of <http://www.wikihow.com/Improve-Critical-Thinking-Skills>)

I have absolutely no issues with her eating organic or anyone who eats organic. I only seek the

truth and we owe it to others, as well as ourselves to know the facts first and then make a decision.

The list of sources I researched for this article:

[BT Corn, What it is and how it works](#) by University of Kentucky

[BT Corn: Health and the Environment](#) by Colorado State University

[There is no BT in your Blood](#) by biofortified.org

[Testing pollen of single and stacked insect-resistant Bt-maize on in vitro reared honey bee larvae](#) by PubMed.

[Bacillus Thuringiensis](#) by Cornell University

[BT Toxins found in the Afterbirth of Pregnant Women](#) by GMO Answers

[GMOS Causes Leukemia? Think Again](#) by biofortified.org

FDA's Role in Regulating GE Foods by US Health and Human Services Dept.

If you have questions, who do you ask? Below are sites and sources I highly recommend:

[CommonGround](#), [FoodDialogues](#), [GMO Answers](#), [Biofortified.org](#), [GMO Skepti-forum](#), [WeedControlFreaks](#), [BestFoodFacts.org](#), [GeneticLiteracyProject.org](#), [SafeFruitsandVeggies](#) or follow these individuals on Twitter: @gmopundit, @kevinfolta