

## *Module 11 Lesson 3*

### **Transcript**

Today we're talking GMO's. Today my goal is for you to feel really confident in your understanding of GMO's and how they contribute to your own health and wellness and the health and wellness of your clients of course. We started to touch on this during a TNS level one expert instructor lesson. Today I really wanted to nail this info down. We're going to cover the definition of GMO's and what it actually means, the use for GMO's and the controversies surrounding them, and how to steer your clients in the direction that best suits them.

Let's start with the definition. GMO stands for genetically modified organism. GMO's are essentially living organisms whose genetic material has been artificially manipulated in a laboratory by changing the organism's DNA. This is why they're often referred to as Frankenfoods. Maybe an alteration on the DNA has been straightened to be drought resistant or maybe a tweak to the DNA to up the vitamin A content in a carrot has been administered. These manipulations include added foreign genetic material to create plants, animals, bacteria and virus genes that do not occur in nature or through traditional cross-breeding methods that we learned about when we studied Darwin. Supporters of GMO's say that they're simply accelerating natural selection or breeding superior organisms. Know that there are different kinds of genetic manipulation and not all of them are considered GMO.

With GMO foreign genetic material from a different organism is introduced. There's also genetic editing, which is different from GMO because it's simply manipulation of the organisms existing genome. You may have heard of CRISPR technology and this is genetic editing, for example, not GMO. We're using GMO's so that we don't have to use as much insecticide or herbicide because it's built into the plant. Our apples don't turn brown as quickly and consumers may be happier with that. We can increase crop yield, prevent drought tolerance and enhance nutrition, but we haven't actually found the evidence to support that part yet. We can end hunger. There's a weak argument that GMO's were supposed to end hunger, but that hasn't been the case yet either.

You may wonder, are GMO's safe? Well, they're still pretty new and the jury is out. Preliminary research is saying that they're safe for consumption at least now, but the evidence is mounting and mounting that they are wreaking havoc on the environment and farmers and I remain very skeptical and would always prefer organic food where there are no GMO's.

Since GMO's have led to big advances in biotech, large farmlands have been dedicated to mono cropping, which means growing just one thing repeatedly on the same land. This allows for uniform growing, harvesting, purchasing, packaging, transportation, and predictability of crop output that you can't get from organic farming. If a farmer's GMO tomato crop has all uniformly sized tomatoes that ripen in about 60 days, then they're really at an advantage in planning their harvest. Their packaging materials can be uniform and there's little room for surprise.

On the contrary, organic tomatoes come in many shapes and sizes and are harder to reliably plan for. However, those perfectly shaped GMO tomatoes do come at a cost. GMO farming drains nutrients from the soil, so chemical fertilizers are needed. Those fertilizers find their way into our groundwater and harm the insects which harm the birds. The environment is ultimately paying the price.

Farmers are also caught in the GMO movement. They partner with biotech companies who hold the rights to the seed technology and they lose the freedom of raising crops as they like. Sometimes some of the inputs like the fertilizers and herbicides or pesticides that are sprayed at the farms up the road find their way down to the other farms and contaminate unsuspecting neighboring farms.

The bottom line is that our government feels GMO's are safe but lots of people are pushing back. In 2016 a law was enacted in the US that requires labeling when genetically modified material is detected in a food. That is an amazing step, but this law didn't include mandatory labeling for foods that contain refined ingredients from GMO crops or if no modified genetic material was detected.

Basically there's a big loophole in well-intentioned law and our foods may have GMO's and not be labeled. The EU, Japan and Australia to name a few are more wary of GMO practices and do require labeling. Here in the US there's a big movement to have all foods with GMO ingredients labeled and that's taking root. By 2022 we'll see the dark act in effect, and many products will need their GMO ingredients identified.

I'm not telling you this to freak you out. GMO's are probably here to stay for a long time, and most of the ethical arguments that have been going on for decades aren't proven and may be unable to be proven. All the naysayers out there don't as of yet, have arguments that have changed the direction of the industry. We're just now seeing our first lawsuits against agribusiness making an impact, but the anti agritech folks have been fighting the system for 40 years. The foods and

ingredients at highest risk of being GMO are alfalfa, canola, corn, cotton, papaya, soy, sugar beet, zucchini, and potato.

Okay, so what are we to do? Well, just like I discussed in the organic lesson, here's a place to meet your clients where they are. We don't need to get freaked out. We need to be educated and aware. If you have a client who doesn't feel strongly about GMO's, I don't think you need to actively put this on his or her radar. There's probably a lot of other steps in this person's lifestyle that they need to make before worrying about this one specific thing. If this person is following your plan and eating a whole foods diet and limiting processed foods, they're probably already avoiding a lot of the GMO foods out there. If you have someone who was really concerned about GMO, you can point that client in the direction of shopping at a farmer's market and co-ops where they can see where and how their food is sourced.

The truth is if you're getting people to eat more whole real foods, they're going to be naturally reducing some of the GMO's that may be in their diet. Lots of companies are opting to put a label that says non-GMO project verified or organic, since organic farmers can't plant GMO seeds. Note that these labels are costly and just like there are many organic foods that don't have a certified organic label. Not every food that doesn't have the non GMO project verified label is going to contain GMO's.

Let's take a minute to review. GMO stands for genetically modified organism. They are living organisms whose genetic material has been artificially manipulated in a laboratory by changing the organism's DNA where foreign genetic material has been added. Genetic editing is the CRISPR technology which manipulates the organisms existing DNA without adding foreign genetic material. As of now, GMO's have not been found to be dangerous for health, but they are wreaking havoc on our environment. The most common foods that are grown with GMO methods are alfalfa, canola, corn, cotton, papaya, soy, sugar beet, zucchini, and potato.

For clients who are more concerned about avoiding GMO's, encourage them to shop at trusted markets and shops where they can speak with the people who produce the food or with store managers who understand the labels. I hope this was enlightening and cleared a few things up for you. I'll see you in the next lesson.