Announcer:

The Missouri State Journal, a weekly program keeping you in touch with Missouri State University.

Emily Yeap:

Many of us have heard of GMOs and GE foods. They stand for genetically modified organisms and genetically engineered. While these types of food are limited and highly regulated, they are some of the most misunderstood and polarizing food items. I'm Emily Yeap.

With me today to give a more accurate and in-depth insight about GMOs and GE foods is my guest, Jaime Gnau. She's a registered dietitian and clinical instructor in Missouri State University’s Department of Biomedical Sciences.

Jaime Gnau:

GMO stands for genetically modified organisms. This is really a vague and generic term for any crops or foods that have been genetically modified through gene alteration in agriculture, and this has been going on for thousands of years. Our crops are genetically modified through selective breeding and crossbreeding to get those traits that make the crops stronger or more flavorful, things like that. Whereas genetically engineered, this is a term that is more specific to the process of combining DNA from different organisms in one crop or in one plant. And that is to express a desired trait and it’s a specific trait that scientists have identified, and they want to code for a targeted trait quickly without altering the rest of the plant.

Essentially, genetic engineering does what selective breeding and crossbreeding have been doing for thousands of years, but it’s more precise and takes a significantly less amount of time for them to do it.

Emily Yeap:

What's the main reason for misunderstandings about GMOs and GE foods?

Jaime Gnau:

There's a lot of misunderstanding around GMO or GE foods. It kind of speaks to our tendency to believe that anything that is natural is good for us and anything that is unnatural is bad, and that’s considered the natural fallacy.

If we think about apples and apple seeds – so, they contain cyanide. This is a poison. It's a natural poison, right? It's bad for us, but it’s natural. It kind of goes with our gut instinct to think, “Oh, it’s not natural, it doesn’t occur in nature, it must be bad,” but it’s not necessarily true. That's not necessarily a fact.

Emily Yeap:

Gnau explains why there’s a need for GMOs and GE crops.

Jaime Gnau:

The primary reasons for genetically engineered crops is first of all, insect resistance. So, to reduce pesticide use and make these crops resistant to their natural predators, basically. The next one is herbicide tolerance, which reduces soil erosion and carbon emissions due to the decrease in tillage. Next is disease resistance. This type of genetic engineering actually saved the Hawaiian papaya and the farmers that produced those crops. So, that was really exciting for those farmers. And then, the last one I’m going to touch on is enhanced nutrition profile. So, they can genetically engineer fruits and vegetables or crops to have more nutrient-dense properties.

An example of this is golden rice, where they have imparted the plant to produce beta carotene, which it doesn’t naturally do. But this is a precursor to Vitamin A, and Vitamin A deficiency is one of the leading causes of preventable night blindness in the world. So, increasing nutrient density in foods is something that can improve quality of life and even save lives around the globe.

Emily Yeap:

Gnau highlights some common and up-and-coming GMOs and GE foods.

Jaime Gnau:

Alfalfa, canola, corn, papaya, potatoes – which is a specific potato variety as well, it’s not all potatoes –

soybeans, summer squash – like crookneck squash – and zucchini, and then sugar beets. Apples, and specifically the arctic varieties, and these are new. I haven’t seen them in any of the stores around here yet. But it’s really exciting because they are genetically engineered to not brown. So, 40% of apples that are produced right now are wasted due to browning. These don’t brown, so you can slice them and throw them in a bag for a snack and they’re not going to brown. So, it’s going to reduce food waste, which is exciting. There's a new genetically engineered salmon which has been approved, but I haven’t seen it distributed yet.

One thing I want to point out about that list is a lot of times people think that wheat and rice are also genetically engineered, but there’s no genetically engineered wheat or rice in our food system. The golden rice is starting to be produced in other countries, but we don’t have it here.

Emily Yeap:

That was Jaime Gnau, an MSU registered dietitian. Tune in next Tuesday for the second in a two-part series about GMOs and GE foods. I’m Emily Yeap for the Missouri State Journal.

Narrator:

For more information, contact the Office of Strategic Communication at 417-836-6397. The Missouri State Journal is available online at ksmu.org.