



COMPARISON REPORT

A LOOK
AT THE
DIFFERENCE
BETWEEN
GMO AND
NON-GMO
FEEDS

BY NATALIE DEFEE MENDIK



GMOs, OR GENETICALLY MODIFIED ORGANISMS, are something of a hot-button issue, whether your concern lies with health, the environment, or your bottom line. In horse feeds, we commonly see genetically modified (GM) crops; these are plants whose DNA has been tweaked by inserting a gene in order to improve upon various traits.

Regardless of whether this sounds like a great idea or like mad science to you, the fact is, GM plants abound. Dr. Kathleen Crandell, an equine nutritionist, fills us in on details to help make sense of this new field. »

» **EJ: IN A NUTSHELL, WHAT ARE GENETICALLY MODIFIED CROPS?**

» **DR. CRANDELL:** GMO—genetically modified organism—is a term that encompasses many kinds of organisms. GMP—genetically modified plant—is what concerns horse feeds. A GMP is a crop that has had DNA from some other source inserted into the DNA of that plant in order to improve it by making it more resistant to drought, insect, fungal and viral attack, or herbicides. The DNA codes for a certain protein, which changes the plant in a minor way.

For example, one most common herbicide we see put on crops to kill weeds is Roundup; a gene can be inserted to prevent the crop plant from being affected by that herbicide. Another technique prevents certain insects from attacking certain crops. For example, for worms that attack ears of corn, a DNA can be inserted into the corn that makes it more resistant to a particular worm. Both measures are to help increase crop yield—either by reducing competition for nutrients with weeds or limiting insect damage.

» **EJ: WHICH FEED INGREDIENTS ARE COMMONLY GENETICALLY MODIFIED?**

» **DR. CRANDELL:** The most common genetically modified ingredients used in horse feeds are corn, soybean, canola (oil), and beet pulp. There is also a Roundup resistant form of alfalfa.

» **EJ: WHAT ARE THE BENEFITS OF GM PLANTS? WHY DO PRODUCERS GROW THEM?**

» **DR. CRANDELL:** GM crops benefit the plant producer—the one selling the crop—by delivering a greater, more consistent yield with fewer inputs. This results in a downstream economic benefit to the consumer, since production of the crop is more cost effective.

» **EJ: WHAT ARE THE DRAWBACKS FOR HORSE OWNERS?**

» **DR. CRANDELL:** There have been no convincing nutritional or health drawbacks shown in the scientific studies in humans thus far. The use of GM versus non-GM foodstuffs has also been studied extensively in livestock. The concern that the GM material passes from the plant into the animal tissues or milk has not been confirmed in studies either. Those that oppose the use of GM foodstuffs have concerns that the risks have not been adequately identified and managed, and are apprehensive of the objectivity of regulatory authorities.

» **EJ: HAVE THERE BEEN ANY STUDIES SPECIFICALLY ON HORSES?**

» **DR. CRANDELL:** No, I haven't found any studies that looked at horses and GMPs, but that would certainly be an interesting area to focus on in the future.

» **EJ: COULD YOU TELL ME A BIT ABOUT THE PROCESS TO TEST WHETHER GM**

CROPS ARE SUITABLE FOR CONSUMPTION?

» **DR. CRANDELL:** Each crop is extensively studied by the company that's going to be licensing that genetically modified crop, usually done by a third party, like a research institute or a university. Then there is a feeding trial with the genetically modified grain being tested and a non-genetically modified grain. Say they are testing with a dairy cow: they look at everything—milk production, digestibility, weight gain or loss, check for any of the DNA in the milk, meat or in the organs—to see if the GMP could have any affect on the animal. Every study I've seen so far in different livestock like dairy cows, cattle, sheep, pigs, chickens, and quail, hasn't shown any problems. The GMPs don't make things any better, because the animals aren't more productive, but they also are not less productive, either. In addition, they haven't so far found errant DNA in places where it shouldn't be.

» **EJ: ARE COMMERCIAL HORSE FEEDS WITH GM INGREDIENTS REQUIRED TO BE LABELED AS SUCH?**

» **DR. CRANDELL:** There is no requirement to have it on the label in the U.S. yet. When a feed manufacturer buys a load of corn from the local producer, even the manufacturer may not know if it's a GM crop, because the person growing it does not have to disclose to the feed mill whether it

TREATS, TOO

Non-browning apples: Franken-fruit or cool food convenience? As reported recently on National Public Radio (NPR), the genetically modified "Artic" apple is under consideration by the U.S. Department of Agriculture (USDA) for approval onto the U.S. market. This engineered apple doesn't brown quickly after being cut and thereby exposed to oxygen, as a natural apple would. The insertion of a genomic sequence already found in apples suppresses the natural enzymatic browning process.

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ADDITIONAL THOUGHTS: GMOs—YEA OR NEIGH?

As non-GMO feeds start to gain popularity in the U.S., we spoke with some well-respected feed companies in the nation to find out where they stand with these two types of products:

"While non-GMO feeds are almost impossible using traditional ingredients, we are working on some options to offer to horse owners this year."

— Eric Haydt, Vice President, Business Development, Triple Crown Nutrition, Inc.

"White Haven Farm carries both GMO and GMO-free products. There are good arguments on both sides of the fence. There is not enough research to provide an accurate assessment."

Twenty years down the road from now, where will our health, as well as our equines' health be? Are we going to make everything GMO-free? Highly unlikely. The cost would be prohibitive, and the availability would be difficult. Because I specialize in Cushings, laminitis, and founder horses, do I recommend GMO-free products? I certainly do. There is enough against those horses that every bit you can do will help enhance survival rates."

— Donna White, Owner, White Haven Farm

is or not. GMPs are pretty prevalent in U.S. livestock feeds: 95% of sugar beets, 94% of soybeans and 90% of corn are grown from genetically modified plants.

» EJ: WOULD YOU BE ABLE TO COMMENT ON HORSE FEED PRODUCERS THAT ARE SELLING FEEDS LABELED AS NON-GMO?

» **DR. CRANDELL:** There are a few horse feeds labeled as non-GM in the U.S., but their availability is very limited and they are quite expensive. In general, the only way you can be assured that ingredients are non-GMO is to buy U.S. certified organic; that's one of the definitions of organic—certified organic products cannot include genetically modified materials. Organic crops are more expensive to produce because they don't have as high a yield, so organic feeds tend to be higher priced, because the crops themselves are more expensive and not as widely available.

The little catch with organics, though, is that if the organic farmer's fields are next to fields with GM plants, there can be some pollen drift from one farm to the next, causing contamination if pollen from GM plants is blown over to non-GM plants.

» EJ: DO YOU HAVE ANY ADVICE FOR HORSE OWNERS REGARDING GM AND NON-GM FEEDS?

» **DR. CRANDELL:** In general, we haven't seen any nutrition or health issues related to the use of GM ingredients in horse feeds. Choosing an appropriate fortified feed produced by a reputable company for your

horse and feeding it at the directed rate in combination with an appropriate amount of good, quality forage and ensuring free choice access to salt and fresh water will generally serve your horse quite well. However, if the use of GM-products is something you feel strongly about, you could use oats or barley—which do not have genetically modified forms being commercially grown yet—as the basis of the grain portion of your horse's diet or buy organic. In addition, vegetable oils do not contain genetic material (only fats), whether derived from a GM crop or not. The use of straight cereal grains or oils may not result in a nutritionally balanced ration, so some supplementation of minerals and vitamins would be recommended.

» EJ: IS THERE ANYTHING YOU'D LIKE TO ADD?

» **DR. CRANDELL:** Europe is a region of the world that requires labeling of GMO ingredients. I think we're going to see more about this as we look more closely into how genetically modified organisms compare to traditionally-bred plants. It's an issue that's not going to go away, even though the crops are very prevalent in this country and in some of the other large food-producing countries, like Brazil.

Whatever side of the debate you are on—if you are in on the debate at all—many American commercial horse feeds now contain genetically modified plants. If that's a concern for you, buy organic, GM-free feeds. In the meantime, research continually probes this developing field of science. **EJ**

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