

The GMO Issue...

—Ernest Martin

In the third chapter of Genesis we read about the fall of man and the consequences that we have had to bear ever since. While all people are subject to the curse that was bestowed upon man that day, I believe we as farmers and gardeners are much more aware of the part that was doled upon the male in verses 17 through 19. Verse 23 of that third chapter sums it all up by saying, “Therefore the Lord God sent him forth from the Garden of Eden, to till the ground from whence he was taken.”



For the last six thousand years this is what our forefathers have been doing. If we study history, especially the last one to two hundred years, we see where there has been much done to improve on the way we handle this curse. We have seen much progress in the way the “thorns and thistles” are handled, and I am very appreciative of some of these. But I strongly believe that too often when we see progress, we automatically label it as an improvement even though it actually isn’t. This last statement will bring me to the basis of what I want to write about in this article. GMOs. [GMOs, or “genetically modified organisms,” are plants or animals created through the gene splicing techniques of biotechnology (also called genetic engineering, or GE). This technology merges DNA from different species, creating unstable combinations of plant, animal, bacterial, and viral genes that cannot occur in nature or in traditional crossbreeding. Ed.] Are they progress or are they an improvement? I will give you my opinion on why I think that although they may be progress, it is totally in the wrong direction.

When Norma and I were married in 1994 and started our dairy farm almost immediately afterwards, organic farming was a phrase that was hardly ever heard in our social or farming circles. My mother had subscribed to *Organic Gardening* magazine in the 1980s while I was growing up, and I remember hearing about and seeing only one or two organic farms up until the time we started dairying. Much of that wasn’t very positive. In fact, most of what was said was in that derisive tone of voice that can still be heard today when people feel threatened by, or do not understand, organic farming.

While I can no longer remember if it was in the fall of ’94 or ’95, I still remember the excitement in the local chemical salesman’s voice as he told me about this wonderful new variety of soybeans that was coming out that could be sprayed with Roundup and would not be killed. With the same enthusiasm he proceeded to tell me that soon not only would soybeans be available with this wonderful new gene, but also corn, alfalfa, and most other crops grown by farmers at the time.

What he did not tell me, and very likely didn’t even know, was how these genetically modified seeds were produced. In discussions since, with either promoters or defenders of GMO seeds, I have often heard the comment that it’s just another way of breeding plants, and that our ancestors have been doing hybridizing and seed selection for hundreds, and possibly thousands, of years. Or another excuse is that even plants in the wild hybridize and come up with new varieties.

I know all these things have happened in the past, but it is critical that people are aware that this is nothing even close to what happens when they *create*? GMOs!

I had never fully understood the process and still don’t claim to know nearly everything there is to know about it. But I have been able to figure out that the only love affair between animals and plants is when it’s time for the animal to eat.

To produce a genetically modified crop, scientists use what is called a gene gun, identifying and isolating a gene,

As GMO crops are increasing, there is an increasing demand from consumers to label GMO foods as such. There are a few good books that I would recommend to anyone that is concerned about the presence of GMOs in our food. Two are *Seeds of Deception* and *Genetic Roulette* by Jeffrey Smith. Another one is *The Unhealthy Truth* by Robyn O’Brien. Both of these authors have spent huge amounts of time researching this subject.

One thing I have not been able to figure out yet is that if these mega-size chemical companies are so proud of their bio-tech crops, why do they fight tooth and nail to keep from being required to label them that way. As an organic producer, I have no problem at all to have my products sold under the USDA organic label.

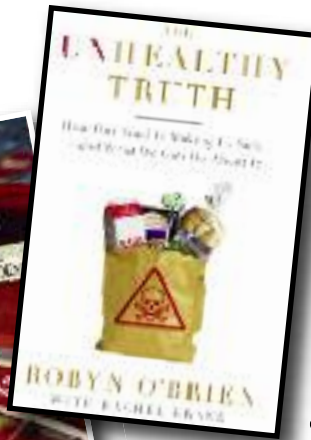
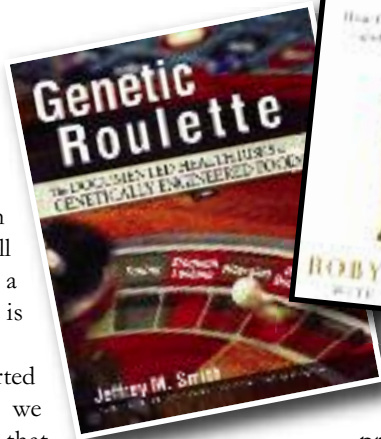
then shooting it into plant cells. Whenever this is done it will dislocate or eliminate other genes that have already been in the plant. Scientists aren't able to determine beforehand which of the genes in the plant will be affected. So to put it in a few words, the process is basically a shot in the dark.

What really got me started thinking about whether we should be as excited as that chemical salesman was when I started reading up on the process and found out that not only can scientists transfer genes from one plant species to another, such as from a corn plant to a soybean plant, but have already successfully inserted genes from a fish into a tomato plant. And according to Jeffrey Smith's book *Genetic Roulette*, they have worked on a few ridiculous ones such as—inserting spider genes into goats, hoping that the resulting goats' milk would have spider web protein that could be used in the production of bullet-proof vests. And my favorite—or least favorite one—jellyfish genes that supposedly lit up pigs' noses in the dark, which I guess would come in handy if the pigs happened to get out at night. But is this really where we should be going? What if some ambitious scientist wanted to start using human genes in plants? It seems some of these changes come in such a way that they are here and accepted before we realize what is happening.

So back to where the industry is at this time. While the most common form of GMO is the Roundup Ready gene crops, there are some other herbicide-resistant ones available. Taking from what I have read and seen I would say the next most popular one would be the Bt gene (*Bacillus thuringiensis*) which is one that has the plant produce an insecticidal toxin in the plant to deter or kill insects. There have been numerous farmer reports on the poor digestibility of this corn when harvested as corn silage and also very poor breakdown of the corn fodder left in fields if the crop is harvested as grain. And the most recent developments to hit the news is that rootworms are now overcoming the toxins the plant produces and are no longer being deterred by it.

In this area soybeans are the number one GMO crop, followed by corn. The newest addition is alfalfa which has been deregulated. There also is a turf-type bluegrass that has just been released, which gives golf courses and the wide expanse of suburban lawns also the opportunity to be sprayed with Roundup.


With all these GMO crops now available, is it as successful as when I first heard about it? For one thing, when Roundup Ready corn first came out many producers had not thought about what would happen when they planted RR soybeans the first year after RR corn and ended up with large



amounts of volunteer corn in their bean fields that the Roundup would not kill. We start hearing more and more of certain weeds that may be getting resistant to Roundup. This is leading to more older, possibly more dangerous herbicides being used. The first GMO tomatoes were a flop, with the flavor reportedly resembling cardboard, even more so than those supermarket tomatoes that one can

buy during the winter. The most recent news has been a rootworm that has adapted to Bt corn and the problem seems to be spreading. According to "The Organic & GMO Report" a new golden rice that was to be much higher in Vitamin A is now reported to contain less than one percent of the beta carotene levels that was expected, and when cooked that declines by 50%. In the same issue is a report that glyphosate, more commonly known as Roundup, is now often found in air, rain, and streams in areas where it is heavily used. In addition to all this is a former professor from Purdue University by the name of Don Huber who is now speaking out on the poor nutritional content of crops that were sprayed with Roundup. There may also be more and I'm convinced that this is just the beginning.

So what is the answer to all this? I am sure there are many differing opinions on this matter and I will respect each individual's decision on their view of all this. But for myself, I believe that many of our answers lie in our forefathers' way of farming. If we keep a good crop rotation and apply animal manure for fertility, we will not have the weed pressure, thus reducing the need for all these chemicals. In addition, the rootworm problems are almost nonexistent in a good rotation, totally eliminating the need for Bt corn. A crop grown under such conditions will be much less dependent on purchased fertilizers and be a better feed for our livestock. And finally, soil conditions will be improved in the process.

Now back to the curse that was bestowed upon us six thousand years ago. With all the modern advancements in agriculture, the curse still remains. The "thorns and thistles" are a problem like they have always been. No matter how many new and modern chemicals are introduced, the weeds tend to build up resistance. The one method that they have not been able to overcome is the cultivator and the hoe. This brings to mind a comment I will use in closing. The wording may not be exact, but it goes something like this—"We can fight nature but we will never win, so it is better to *work* with nature." And make no mistake, nature is the home team and always gets to bat last. 

Ernest and Norma Martin and their family have an organic dairy near Shiloh, Ohio.