

The genetically modified seed history essay

[History](#)



Heather HusseyEng. 102Baker CollegeMs. SemaanAbstractThe world's survival depends on its crops, sustainable only in its intelligent practices in farming. In a departure from our tradition, world society has begun to rely almost entirely on genetically uniform seeds provided by only a handful of large agricultural corporations. These corporations are poised to ruin our ancient and diverse crops with the genetically modified seeds, to which they hold the patents. Genetically engineered crops will never have the resilience or sustainability of those that have proven themselves with natural selection.

Black Magic: The Genetically Modified SeedImagine for a moment a poor, generally uneducated Indian farmer, who survives by growing a crop that has sustained his family for generations. This farmer experiences both good and bad years like many farmers, sometimes losing some crop to weather and drought, but usually has enough to sustain his family from year to year. Every year he is able to harvest enough seeds to save to ensure planting next year's crop. It has always been this way for countless generations before him. Saving seed from each harvest is all he knows. The idea of a patent on seed makes no sense, how can anyone own a seed? It is not something he can comprehend, saving seed is what he knows. Recently however, his neighbour Sanjay has come over to tell him about the incredible seeds he has just purchased. They were cheap and it's going to produce a goliath crop that's bigger and hardier than anything any one of the farmers in the area has ever produced. It has even been modified, providing much needed nutrients to your family. It's so cheap, because the government is willing to subsidize it by special arrangement with the agricultural company. Too hard to resist, he will buy into the seemingly fairy-tale-esque promised magic of these seeds, thinking already of the surplus he will sell to allow his

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family to start some meagre savings. The whole community is on board already. The proposition seems win-win, and to refuse would seem as though to be left behind. The farmer watches and waits and is amazed at the results. He is slightly perplexed however at the new insects that have appeared on this crop, ones he has never seen before, but nonetheless, he still anticipates higher yields than ever produced before this. The farmer is stunned at the size of these plants, and how large the leaves are but, as he watches it grow tall, it seems that there are more and more insects attracted to these plants. With a sinking heart the farmer soon realizes he will need to buy pesticides that the seed company just so happens to be able to also provide. It's expensive - terribly so, but the farmer is assured that he can borrow against next year's crop...Genetically modified seeds, provided by only a few major agricultural companies, are poised to destroy the sustainability of crops worldwide. Without genetic variability in the seeds provided by these companies, crops which the world relies on for its survival will be destroyed. Science cannot replicate the natural selection providing resilience in the world's seed stock - and that is a precipice the world cannot afford to fall into. The World Health Organization in fact warns there are " groups who fear that as a result of the interest of the chemical industry in seed markets, the range of varieties used by farmers may be reduced mainly to GM (genetically modified) crops. This would impact on the food basket of a society as well as in the long run on crop protection (for example, with the development of resistance against insect pests and tolerance of certain herbicides). The exclusive use of herbicide-tolerant GM crops would also make the farmer dependent on these chemicals"(WHO, 2013, para. 44).

Cycle of Destruction

Hopefully, the farmer in the introduction still has some of his family's seed stock on which to rely, otherwise these genetically modified seeds may have been catastrophic to the survival of his family. Agricultural corporations do not allow farmers to collect seeds from what they've harvested from their abysmal crops. That agricultural company who kindly provided the inexpensive seed considers that patent infringement. Monsanto (one of the titans of the agricultural corporate world) states on their company website, "Enforcing patent law is not much different from the enforcement of other laws. Most people respect the law. Often, honest citizens will report those who break the law. The same is true for patent infringement involving saved seed. The vast majority of farmers respect patent laws and honor their agreements to abide by that law. When one farmer sees another farmer saving patented seed, they will often report them. Many of the tips Monsanto gets about farmers saving patented seeds come from other farmers in the same community". And so begins the vicious cycle of the genetically modified seed. While agricultural companies like Monsanto will claim high yield, they neglect to add the cost of chemical needed to raise said crops to fruition. Often these crops, due to little genetic variance, need a lot of chemical and fertilizer to withstand what nature deals it, be it drought or high wind or pests, while genetically varied seed has the ability to withstand what it historically has "learned" by passing along its genes from year to year. Unless the world maintains the diversity of crops and their seed, we stand poised for the potential decimation of our own food supply. Naively, society assumes that science is always the best way, and that it will continually save society from its own folly. Science will tell us that while no

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solution is perfect, they can supply farmers with quality seeds. What has been failed to be recognized is that with developing new genetically modified seeds, these private agricultural corporations have benefited more than humanity. So, just as any good grandmother would advise " don't put all of your eggs into one basket", the world too must accept that diversity in our crops is vital to our food security.

No Resistance

The seed that we rely on in these modern times are, genetically speaking, exceptionally uniform. This is due to crops being controlled by only a very few agricultural corporations who in turn sell very little variances in the seed they provide. The impact of these genetically modified seeds became very apparent during the 1970's when the vulnerability of genetically modified crop became alarmingly obvious. According to his article The American Corn Blight, Fred Powledge states, " The American corn blight of the 1970s showed how vulnerable single-crop systems (" monocultures") are to pests and diseases", (n. d., para. 6). In the 1970's, seed companies had begun a hybridization process of corn to build resistant, genetically modified strains. Farmers were elated, here was a new crop resistant to drought and pests, or perhaps bred to produce higher yield. However, in the Philippines, a fungus had shown up in their corn crops, although American farmers took little notice of it. Tragically, according to Powledge's article, " By 1970, the disease was showing up in Florida, where a lot of corn is grown. When the fungus started infecting corn plants and making them unsuitable for marketing, the price of those that survived rose steeply. Farmers attempted to control the fungus by spraying their fields with fungicide, but that was

expensive and only partly successful. By the time the disease had spread through the American South and into the Great Plains, it had caused a full-blown crisis" (Powledge, n. d., para. 6). This crisis caused corn prices to rise, which thereby affected beef prices (corn is used to feed cattle), costing both farmers and consumers both more. The decision to use only one type of corn eliminated diversity, and in doing so, eliminating the diversity of plants that would have survived the fungus. Barbara Kingsolver, in an article taken from her book *Small Wonders*, "A Fist in the Eye of God", eloquently describes the need for nature's diversity this way, "You can't see the differences until you cast the seeds on the ground and grow them out, but sure enough, some will grow into taller plants and some shorter, some tougher, some sweeter. In a good year all or most of them will thrive and give you wheat. But in a bad year a spate of high winds may take down the tallest stalks and leave standing at harvest time only, say, the 10 percent of the crop that had a "shortness" gene. And if that wheat comprises your winter's supply of bread, plus the only seed you'll have for next year's crop, then you'll be almighty glad to have that small, short harvest. Genetic diversity, in domestic populations as well as wild ones, is nature's insurance policy" (2002, para. 9).

False Promises

Those genetically modified seeds provided to the East Indians turn out to have not been effective in India and the consequences have been dire, and nothing remotely resembling what they were promised. Monsanto offered genetically modified seeds to the farmers of India. Iqbal Ahmed, writes in his article *KILLER SEEDS: The Devastating Impacts of Monsanto's Genetically*

Modified Seeds in India (2012, para. 8), " Plain and mostly uneducated farmers thought Monsanto had come to provide a " magic" formula that would transform their lives. They had no idea what was coming. Monsanto's seeds in India did not produce what the company had promised and farmers hoped. The expensive seeds piled up debts and destroyed farming fields. In many instances, the crops simply failed to materialize. The farmers were not aware that the GM seeds required more water than the traditional seeds. And lack of rain in many parts of India exacerbated the crop failure". Without a crop to harvest, the farmers could not pay back the lenders who underwrote this failure, which devastated many families all over the country.

Lack of Diversity

" In the past two decades, Monsanto's seed monopoly has grown so powerful that they control the genetics of nearly 90% of five major commodity crops including corn, soybeans, cotton, canola and sugar beets", this according to Michael Taylor, co-ordinator of the Occupy Monsanto Movement, on their website (2013, para. 10). For the most part we are now relying on crops supplied by a thinly diverse seed bank. The crops we grow depart from our heritage of collecting seed and have become uniform in their genetics. This leaves us extremely vulnerable to repeat the history of the corn blight of the 1970's, where an entire crop may fall to disease all at once with no backup plan. Evan Fraser and Andrew Remas (2012, p. 25), write in their article How to Feed Nine Billion, that " Fewer reserves ultimately mean higher prices and there is no longer any real protection between a jolt of bad weather and tens of millions of households falling into poverty".

Conclusion

All societies have something to learn from the "Third World" farmers, and what was once practiced worldwide, those who have passed down the tradition to sow, reap and collect seed year in and year out. Relating back to Barbara Kingsolver in *Small Wonder*, "A Fist in the Eye of God", she expresses that by not returning to what she describes as the "genetic variability", provided by nature, "we are now engaged in a serious effort to cancel that insurance policy" that is taken for granted (Kingsolver, 2002, para. 15). Science cannot begin to reproduce what nature already has in place, and in trying to do so they are only dabbling in a little "black magic", which produces nothing but bad fairy tale endings.