A closer look at the GM debate

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Genetically Modified Crops. Credit: brucestutz.com

In the first chapter of *The Origin of Species*, Charles Darwin detailed his examinations of the skeletons of a variety of different breeds of domestic pigeons. To agreement today, he concluded that they all descended, by selective breeding, from the common Rock dove. Clearly, the genetic manipulation of nature by farmers and breeders is nothing new. It is only recently that the process has been given a boost by the

tools of genetic engineering. In places around the world today, this has precipitated a bit of crises. *Nature* magazine has dedicated their most recent issue to a discussion of genetically modified (GM) products in farming. In a series of diverse articles, they explore some of the fears and concerns that have made GM contentious, but optimistically conclude that the greatest benefits of GM still lie ahead.

Opinions in Europe have tended to run hotter than elsewhere, especially with regard to rights of companies to tamper with the agro-heritage we hold in common. Perhaps as long as Europe's traditional wines, and singular monastic brews, still command the highest prices worldwide, they may continue to be the first to cry foul and be heard. Many companies throughout the world now distribute genetically engineered products, but perhaps no name is more synonymous with GM, than that of Monsanto.

The scientific successes of Monsanto include crops resistant to both natural challenges like drought, and artificial assaults like glycophosphate herbicides (Roundup). They have also developed BT (Bacillus Thuringiensis) cotton, maize, and soybean which contain insecticidal protein. Of less clear universal benefit are products that help farmers more than consumers, like for example, rBGH (recombinant bovine growth hormone) which increases milk production. Most dubious among their products are those which alter the crop to help neither consumer or farmer, but only themselves. Their "terminator seeds," which produce plants that are sterile, have value mainly for corporate profit. At each level, not only a lack of transparency, but also visibility, in the form of clearly labelled products detracts from the universal acceptance of GM.

In many respects the most onerous aspect of GM is not fears and concerns about the products themselves, but the behavior of the companies that peddle them. In the case of Monsanto, clear examples of

litiginous zealotry, prosecutorial patenting, and backhanded lobbying have been found at every turn. When the individual faces the corporate, a fair system must equally distribute doubt and preserve the human over the entity. For example, in 1997, Monsanto brought a case against a farmer named Percy Schmeiser. In his own defense, Schmeiser claimed that roundup-resistant canola growing on his farm had blow in from neighboring farms. After extensive court battle, and several losses by Schmeiser, the only final victors in the case were the attorneys.

In cases like Schmeiser's, where doubt dominates fact, the judge should not be asking Schmeiser to defend why nature grew on his farm, but instead ask Monsanto if their product could contaminate Schmeiser's farm. The concept that plants growing in a farmers soil do not belong to the farmer, is no more valid than to claim a parent does not own a videotape of their child's dance recital if the background song has a copyright. The licensing model is an artificial one that only applies in territorial waters. Like the music industry, the GM industry continues to make the mistake of trying to apply its licenses in real-world international waters.

Perhaps the biggest threat to acceptance of GM is when it intersects areas where there are no facts, but doubts abound. For example, the Mayo clinic has reported that the incidence of Coeliac disease is four times more common today as it was in the 1950s. They further concluded that something in the environment, or in wheat, must have directly caused this change. While that is a logical postulate, the hard reality is that there is no practical scientific study that can be done to prove it. In that void, there is only anecdote.

Perhaps the best solution then, is to scientifically organize the real anecdotes. Trying to create artificially controlled anecdotes, as in a special-interest study, would inevitably lack universal acceptance. Formal submission and open conglomeration of anecdotes is a good way

to expose and dehorn unfounded fear. It is also a good way to vet and amplify legitimate correlations whose broader interpretation may be productive.

One *Nature* article entitled, *Case studies: A hard look at GM crops*, points to even more insidious claims that have been made against GM crops. In India, Bt cotton has been blamed for an increase in total suicide rates across across the country. The larger truth now appears to be that, at least for farmers, the suicide rate itself hasn't even changed. The path forward for GM will no doubt have a few bumps, but it appears that many new products of tremendous benefit to mankind are just on the horizon. Visibility and communication will be an essential feedback mechanisms to ensure that corporate introduction of these new technologies proceeds at a pace where consumer trust has sufficient time for verification.

More information:
www.nature.com/news/specials/gmcrops/index.html