

No to GMOs: At least we'll still be able to grow food.

Regarding the opinion piece on March 11, "We may starve, but at least we'll be GMO-free," this opinion seems to represent a misunderstanding of the danger of GMOs. It is not (just) about the healthiness of the food: it is about the health of the Earth and the small family farm.

Environmental biologists understand the concept of co-evolution, such as when plants and insects evolve in response to each other. For example, a plant species may be suffering from being eaten by a particular insect. Eventually, through genetic mutation and/or selection, that plant species will develop a means to combat that particular insect, perhaps by producing a longer flower that makes it more difficult for the insect to get to the food. Perhaps then, the insect will develop a longer "mouth," which will allow the insect to be able still to feed off of that plant. Then, perhaps the plant develops a new means to combat being eaten by the insect, as it may begin to produce a substance that makes the plant taste poorly or be indigestible to that particular insect. If the insect cannot evolve quickly enough to combat that particular development in the plant, all of the remaining plants of that species that did not evolve or contain that gene will quickly be devoured by the insects, as they become the only plants that the insects can eat, and they do not have the defense mechanism to keep the insects from eating them. These processes often take many, many, many years.

Now, let's add human intervention to that equation. Now, we have a plant species that becomes instantly resistant to its main devourer due to human genetic manipulation, as a new gene is added to the plant to make it insect resistant.

The natural consequence is that any "natural" plants remaining of that species, without the human-created gene, are easy prey for the insects, as they don't have the protective gene, and yet are the only food left for the insect. (For simplification of the argument, I am assuming that there is one insect that feeds on that plant, and only one plant that such insect eats. The situation in nature is vastly more complex, but the idea still holds true). What happens next is that the "natural" species of plant eventually will become extinct, and any plants without the human-created gene will quickly be decimated by the insect, which cannot eat the plants that have been genetically modified. When that happens, the only plants of that species that will produce food for humans are the ones that have been genetically modified.

To understand why this could be a problem, one needs to recognize that not all farmers in the world are able to buy new GMO seeds every year. Many poor farmers and family farms only harvest a portion of their crop every year, and let the remainder go to seed, so that they can use these seeds in the subsequent year for next year's crop. They do not buy seeds often, if ever. Some of these farmers are in areas without easy access to food, and do not have the means to pay for food even if they did have a food mart near them: They have grown most of their own food for many generations.

If the non-GMO crop of these subsistence farmers becomes the only remaining source of food for the insects (who cannot eat the remainder of the crop, due to the genetic modification), such subsistence farmers will not only have no food, as it will be decimated by the insects, but also will have no seeds for the subsequent year. In order ever to grow any more food, they will have to buy GMO seeds (as all non-GMO seeded plants will succumb to the insect). And, they will have to buy such GMO seeds every year, as GMO seeds generally are “programmed” to not produce viable seeds (and, even if they are not programmed as such, the producers of GMO seeds require purchasers to agree not to harvest seeds from the product for replanting, and GMO seed producers have not been hesitant to sue farmers for taking seeds from GMO plants and planting them (or, for that matter, to sue farmers whose crop genotypes are altered by “blow by” through no action of their own)).

This is not a far-fetched scenario, although it may take many years to play out. It also is not the only scenario that leads to all farmers in the entire world who want to grow a certain crop being dependent on the GMO seed producers. As another example, some GMO plants are “designed” by humans to be pesticide resistant. This allows farmers to put pesticides that normally are toxic to the plant crops on the plants, without hurting the plants. That may sound great for a farmer of GMO plants. But what happens if the target insects evolve to be tolerant of that pesticide? Then, farmers of non-GMO plants will discover that they no longer can use that pesticide on their plants to protect their crop, as the insects will devour their crop even with the use of the pesticide. Again, in this scenario, we would be left with a situation in which the farmers of the non-GMO seed lose their crop, have no food, and have no seeds for future farming of that plant. And, again, we take a farmer who has been self-sufficient for generations, growing food for the family, and turn their family into people who either must have the money for GMO seeds every year, or must find a new way to obtain food. If they are farmers with no other income, these farmers will have no income, no food and no way to obtain food. Again, GMOs in this scenario lead to decreased self-sufficiency and increased dependency (or even starvation) of poor subsistence farmers.

These possibilities are not the only potential scenarios, and not discussed herein is the unintended (one presumes) loss of the natural genotype through cross pollination of nearby crops with GMO crops.

So, being against GMO is not just an “ideological luxury.” It can come from a belief that GMO use eventually can lead to a circumstance in which the only plant that will grow and produce food is a plant sown from a GMO seed. For poor farmers in places like Africa, who barely produce enough food to feed their family and produce their own seeds, this would be the end of their ability to produce their own food. As some of these small family farms have little or no income, they will go from being self-sufficient people to being people dependent on the welfare of the state or charity of others.

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