

In “Perilous Pesticide Resistance,” Stephanie Seybert argues that the benefits of herbicide resistant GM crops do not outweigh the risks. Her utilitarian calculus finds the harms to the environment and to the health of agricultural workers to be greater than the economic benefits.

Perilous Pesticide Resistance

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Any good utilitarian would jump for joy upon hearing that pesticide-resistant genetically modified [GM] crops will now produce more food at a faster rate to feed the world’s growing population, right? Well, a report from Dr. Charles Benbrook determined that the 550 million acres of GM corn, soybeans and cotton planted in the US since 1996 has led to an increase in pesticide (herbicide and insecticide) use by about 50 million pounds (“GM crops”). It is also reported that about one million people are poisoned by pesticides each year, which results in around 20,000 fatalities (Freedman). Genetic Engineering has produced many “HT crops,” or herbicide tolerant crops. These HT crops (such as HT soybean) allow farmers to spray broad-spectrum herbicides over their plants without risking crop damage. HT systems have become even more popular because the cost has decreased and prices of herbicides have fallen since the HT crops were first introduced (“GM crops”). It has been clear for some time that environmental damage and human poisoning caused by herbicides are very prominent health issues. An increase in HT crops will only encourage usage of excessive herbicides, which will do more damage

than good. HT crops should not be planted or advocated, and are not worth the harm they may cause.

While herbicide use may allow HT crops to grow stronger and healthier, they have extremely harmful effects on humans that are overexposed to them. Glyphosate is the active ingredient in many common herbicides and has been promoted as non toxic. Unfortunately, while pure Glyphosate has a relatively low toxicity, when it is sold commercially in products such as Round Up, it can be three times as toxic. The Organic Consumers Association reports that excessive exposure to Glyphosate can result in kidney damage, lung damage, pneumonia, destruction of red blood cells, and other severe medical problems. The organization also reports that the chemical has been linked to two types of cancer (Hairy Cell Leukemia and Non Hodgkins Lymphoma) and Parkinson's disease in farmers who use herbicides. Studies show that commercial herbicides that contain Glyphosate have the capability to cause a range of cell mutations and DNA damage and also have negative effects on reproduction ("Leu"). While these commercial herbicides can have so many negative effects, they are advertised as completely safe, and consequently used without proper amounts of protection or used in excess. HT crops encourage the use of these dangerous herbicides, and although the crops have the potential to feed many, they also have the potential to cause too much harm to humans and even kill, as the commercial herbicide Paraquat has done in the past ("Facts about Paraquat").

Herbicides can also have extremely harmful effects on organisms other than the weeds which they are created to kill and humans. Many herbicides kill non-target

organisms. This commonly occurs when they are sprayed over large areas such as fields or forests. When herbicides are dusted over large areas, especially herbicides used in forestry where biodiverse habitats are involved, they can harm weeds which are not targeted and destroy the habitats of animals such as small mammals and birds. Even when the crop dusting occurs over large fields of crops (which are obviously not as biodiverse as a forest), there is often a drift of herbicide that causes damage to offsite vegetation. The non-target plants may provide food for animals or help prevent the leaching of nutrients in an area (“Environmental effects of herbicide”). Herbicides such as Glyphosate (mentioned earlier) are also very toxic to soil life, reducing the number of beneficial micro-organisms, nitrogen-fixing bacteria, and earthworms (“Leu”). Not only are herbicides harming humans, but they kill non target organisms and damage the ecosystems into which they are introduced. Herbicide usage could have extremely harmful effects on our environment, and the use of HT crops will only increase the amount of herbicide used as the prices continue to fall.

HT crops were created so that herbicides could be used to kill off weeds and other plant pests, but what if these herbicides can in fact create *more* of the very pests they were intended to kill? Increased herbicide use has serious potential to become a self-perpetuating problem through pest mutation. Dr. Charles Benbrook (mentioned earlier) seems to be convinced that the reason the application of herbicides such as Glyphosate continues to increase is due to the resistance that weeds are developing. As weed communities shift towards more herbicide resistant species, greater quantities of herbicide are needed to control the weed populations (“GM crops”). Not only will the usage of HT crops allow weeds to evolve to become resistant, increasing the amount of

herbicide needed, but as the amount of chemicals needed increases, the HT crops will cause farmers to become more and more dependent on these herbicides. HT crops have the capability to create a cycle of herbicide usage and weed mutation that will continue to increase the damage done by herbicides to humans and the environment.

Many a utilitarian may argue that HT crops (which enable agricultural companies to use even *more* herbicides than they already use) will help feed the world's poor and end world hunger. The HT crops may feed more people, but if herbicide poisoning becomes widespread, more chemical-dusted food will not improve the situation, and if the environment is destroyed we will eventually run out of places to continue growing the HT crops. Although HT crops may be an answer to short term hunger problems, in the long run they have the potential to be disastrous and cause even more problems. HT crops have the potential to poison humans and other non-target organisms, destroy ecosystems and the very soil in which the HT crops are grown, and create the need for even *more* herbicide usage as pest species become resistant. An increase in HT crop planting and the resulting increase in herbicide usage has too much potential to harm the human population and devastate the ecosystem in which it lives to be considered safe or logical in the long run.

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