We negate; resolved: On balance, the benefits of genetically modified foods outweigh the harms.

Contention One: GMOs disrupt the global supply of food.

The first link is that countries deny food aid altogether when GMOs are included. **Noah Zerbe recalls**

However, **in October 2002** the relief effort took an unexpected twist, as the **governments** of Malawi, Mozambique, Zambia and Zimbabwe **rejected US food aid because of concerns over the inclusion of genetically modified maize.** What had until that point been a routine food aid operation quickly took on added significance, as European and American debates over trade in genetically modified organisms (GMOs) expanded to encompass Southern Africa. The relief effort became enmeshed in the quagmire surrounding agricultural biotechnology and genetically modified food, as the pro- and anti-GM lobbies each moved to outflank the other to capture the moral high ground. Biotechnologys advocates, primarily based in the United States but also including major GM exporters like Canada, Australia and Argentina, accused their opponents of allowing millions of Africans to starve because of irrational fears over hypothetical and unproven risks. The point was most clearly articulated by Andrew Natsios, head of the US Agency for International Development (USAID), who contended that anti-GM ''groups are putting millions of lives at risk in a despicable way'' (cited in Vidal, 2002). Those opposed to GMOs countered that the United States was exploiting the Southern African famine as a public relations tool to improve the beleaguered image of agricultural biotechnology. Having been unable to capture popular support for their products, particularly in Europe, the biotechnology industry was now using the Southern African crisis to garner sympathy for genetically modified organisms. Southern Africa had become embroiled in debates that extended far beyond the simple and immediate question of famine prevention.

Second, trade has been dampened because of GMOs. **Crusoe Osagie reports**

Genetically Modified Organisms (**GMOs**) crops **have been found to contaminate conventional crops, thereby disrupting global food trade**, according to the Food and Agriculture Organisation (FAO) To this end **most countries have banned GMOs for increasingly causing rejection of food and feed exports around the world.** The FAO last weekend announced that **the increased production of genetically modified crops around the globe has led to a higher number of incidents of low levels of GMOs being detected in traded food and feed.** The incidents have led to trade disruptions between countries with shipments of grain, cereal and other crops being blocked by importing countries and destroyed or returned to the country of origin.

This problem with distribution only further threatens distribution. In addition, it could be grave for instability. **Richard Nielsen of Harvard University underscores**

Our results suggest that aid can affect the likelihood of violent armed conflict primarily by influencing a state's ability to credibly commit to an agreement that averts war at present and into the future. For aid recipients, **sudden aid shortfalls make governments relatively less able to make enough side-payments or military investment to preserve the peaceful status quo in the future.**

Our findings contribute to the literature on foreign aid and armed conflict in important ways. In contrast to studies finding only an indirect connection between levels of foreign aid and armed conflict (Collier and Hoeffler 2002), we find a direct connection between changes in aid and conflict. To explore this, we used data on aid flows to countries from 1981-2005.

Contention Two: GMOs harm crucial ecosystems.

Recently, honeybee populations have been increasingly dwindling. **Elizabeth Grossman of Yale University writes**

For much of the past 10 years, beekeepers, primarily in the United States and Europe, **have been reporting annual hive losses of 30 percent or higher, substantially more than is considered normal or sustainable.** But this winter, many U.S. beekeepers experienced losses of 40 to 50 percent or more, just as commercial bee operations prepared to transport their hives for the country's largest pollinator event: the fertilizing of California's almond trees.

There are two reasons why this has happened.

First, pesticide usage has increased. **Beth Hoffman reports**

But a new study released by Food & Water Watch yesterday finds the goal of reduced chemical use has not panned out as planned. In fact, according to the USDA and EPA data used in the report, **the quick adoption of genetically engineered crops by farmers has increased herbicide use over the past 9 years** in the U.S. The report follows on the heels of another such study by Washington State University research professor Charles Benbrook just last year.

Second, genetically engineered toxins interfere with the bees. **Richard Schiffman explains**

But scientists believe that exposure to toxic pesticides is only one factor that has led to the decline of honey bees in recent years. The destruction and fragmentation of bee habitats, as a result of land development and the spread of monoculture agriculture, deprives pollinators of their diverse natural food supply. This has already led to the extinction of a number of wild bee species. **The planting of** genetically modified organism (**GMO**) **crops – some of which now contain toxic insecticides within their genetic structure – may also be responsible for poisoning bees and weakening their immune systems.**

This is important because bees are crucial to agriculture. **The Agricultural Research Service writes One** mouthful **in three** of the **foods** you eat **directly or indirectly depends on pollination by honey bees. The value of honey bee pollination to U.S. agriculture is more than $14 billion annually**, according to a Cornell University study. Crops from nuts to vegetables and as diverse as alfalfa, apple, cantaloupe, cranberry, pumpkin, and sunflower all require pollinating by honey bees.

Contention Three: GMOs disproportionately harm the poor.

David Kaplan initializes

There is growing consensus among Non-Governmental Agencies (NGOs) that the WTO agreement on Trade Related Aspects of Intellectual Property (TRIPs) unfairly benefits agri-business at the expense of developing nations. Among other things, TRIPs requires that food and medicine that was once under the public domain must now be privatized through global patent law. This allows food manufacturers to modify traditionally-bred seeds, patent them, and then sell them back to people who had always used them for free. **The patenting of GM seeds will deepen the plight of farmers around the world who are already struggling. If a farmer switches to a genetically engineered seed, that farmer has to sign a gene licensing agreement, which** specifies royalty fees and **dictates the seed, fertilizer, and chemicals to be used.**3 In the U.S it is now illegal for farmers to save patented seeds without paying licensing fees; in India a bio-tech firm patented a version of basmati rice and is attempting to make farmers pay for essentially the same seeds they had formerly used for centuries. 97% of the agricultural patents are owned by five bio-tech corporations: Monsanto, AstraZeneca, Novartis, DuPont/Pioneer, and Avantis.4 TRIPs also covers microorganisms such as cell lines, genes, and plant varieties, many of which are used for medicine. It allows for the private sector to own the diversity of nature itself.

As the influence of large corporations grows, there are four reasons the poor are harmed.

First, corporations can dictate market supply. **Carmen Gonzalez outlines**

The introduction of GM crops in developing countries threatens to exacerbate poverty and inequality by reproducing the anti-poor bias of the Green Revolution. First, GM crops will disproportionately benefit wealthy farmers because most poor farmers will be unable to obtain the cash or credit to purchase the patented seeds and the expensive chemical inputs necessary to cultivate GM crops.147 Second, the obligation to purchase new seeds every season, rather than saving seeds for replanting, erodes farmers' traditional rights to save and exchange seeds, and may be financially prohibitive.148 Indeed, farmers may not understand this restriction until the biotechnology industry takes aggressive measures to collect royalties for these seeds.149 Third, small farmers who incur debt in order to purchase the expensive seeds and chemical inputs run the risk of bankruptcy if yields fluctuate or if output prices decline.150 Fourth, **even poor farmers who do not purchase GM seeds may nevertheless incur substantial economic losses if the GM seeds boost the yields of wealthy farmers and depress agricultural commodity prices.**151 Fifth, **GM crops may exacerbate rural poverty by enabling large-scale producers to reduce the use of manual labor** (for example, by using herbicide-tolerant crops to reduce the need for manual weeding).152 In developing countries, where labor is abundant, the labor-saving benefits of GM seeds will likely accrue to large commercial farmers **at the expense of landless laborers and small farmers who supplement their income through part-time employment on large commercial farms.** Finally, if GM crops contaminate non-GM crops, farmers in developing countries who export their crops to countries that restrict GM products (such as EC member countries) could suffer enormous financial losses. In short, GM crops pose significant socioeconomic risks to small farmers.

Second, the regulations result in exports. **Michael W. Fox warrants in his book *Killer Foods***

As for the claim that agrobiotechnology will feed the hungry world by boosting industrial agriculture's productivity: **the primary emphasis has been on getting third-world farmers to use their land** not to feed their communities and their many starving animals, but **to produce cash crops for *export*.** More and more people go hungry without local food of good quality or the natural products they once gathered from uncultivated wild lands, which contributed to the sustainable social economy of hundreds of thousands of villages and tribal settlements around the world. **Megafarms and plantations are encroaching upon and obliteraring remaining wildlands** from California to India, from Tanzania to the Amazon. Agrobiotechnology is another nail in the coffin of indigenous peoples, **supplanting traditional sustainable agriculture**, aquaculture, and social forestry. In order to feed themselves and what livestock they have, those tribal gatherer-hunters, pastoralists, and village farmers around the world who do not emigrate or drift to the cities are forced into marginal and wild lands, **with highly destructive consequences that include overgrazing, deforestation, soil erosion, and desertification.**

Third, the Terminator gene creates a cycle of dependency on corporations. **Fox continues**

In 1998 Monsanto bought a small company that had, with U.S. government support, genetically engineered some seeds with **a** "**Terminator gene**," which **creates plants whose seeds are sterile; so farmers cannot save their best seeds to use for the next season.** Terminator-gene technology further protects Monsanto's interests, which are evidently not sufficiently protected under international patent and contracts with farmers that prohibit them from saving seeds to sow the next season. But **it puts farmers at risk because the best seeds are those that are adapted to local conditions.** The sharing and exchange of local seed varieties has been part of the sound science and culture of agriculture for millennia.

Fourth, this leads to an incentive to purchase counterfeit inputs. **Brian Ssenoga explains**

"It is worth noting that **smallholder farmers cannot afford the high prices of some agro chemicals. The most expensive chemicals are counterfeited most.** For instance a number of farmers ask for just enough for one or two pumps. Unless the dealer follows principles and ethics of good standards but more often the dealer has no option but to open, say, a one litre container and measure 150mls for the farmer. That's when and wherethe tendency of diluting with other substances starts."

The scope of the problem continues to grow. **The International Pest Control Magazine furthers**

The overall global estimation, based on ECPA's data (www.illegalpesticides.eu), is that **up to 15% of the crop protection products in the open market** of unknown provenance **are fake** (in Europe ECPA cites this as somewhere between 7- 10%). Globally, this loss is equivalent to a single company with sales in the region of US$4 billion and a top 5 ranking in the industry.

Justus Lyatuu continues

"**Counterfeits deprive farmers of more production**, and they are also harmful to our health. Most of these chemicals (herbicides) are not used in Europe but tested in Africa," he said. Ekadu explained that most chemicals were produced in Europe and dumped in Africa, and the manufacturers were not directly in touch with the Ugandan buyers. **A lot of value is lost through counterfeits. For instance, he explained that between $3.9m and $6m is lost in maize, $6.3m and $15.4m in herbicides.**

These implications are important for us all because poverty exacerbates instability. **Jeffrey Sachs in his book *Common Wealth* impacts**

The growing gap is dangerous in countless ways. **It is dangerous for the poor first and foremost, as millions die each year of their extreme poverty.** The poorest people are undernourished, without access to safe drinking water, and without reliable access to basic health services. Life expectancy in sub-Saharan Africa is forty-seven years, and less than forty years in several countries, compared with seventy-nine years in the high-income countries. The poorest countries, for reasons we shall see, have the highest fertility rates and the most rapid population growth rate. Much of the expected 2.6 billion rise in global population by 2050 will come from the poorest countries, the places least able to absorb the increase. **The poorest countries are the most unstable politically, and the most prone to violence and conflict, often to conflicts that spill over national and regional borders, thereby involving the rest of the world. And the poor, in their desperation to stay alive, are often contributing to massive local environmental degradation** by depleting soils of nutrients, overfishing lakes and rivers, and clearing forests to make way for new farmland to absorb a rising population.