

# PATENTS AND POWER: THE HIDDEN COSTS OF GMOs ON FOOD SOVEREIGNTY

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## Prologue

The global biotech industry and some scientists claim there is a consensus that genetically modified (GM) crops are safe; however, end-user experience and reality appear far more complex. Previous studies and ongoing research raise serious concerns about the health and environmental impacts of GMOs (Séralini et al. 2014; Mesnage et al. 2015). The scientific jury is still very much out on their safety for human consumption. What is clear from the foregoing is that GMOs are engineered and distributed on the legal framing of patenting and propriety.

The patent system governing GMO technology is thus having significant negative consequences on food sovereignty, small-holder farmer livelihoods, and the environment. These consequences may be argued to be largely unintended, but the impacts of these GMO patents, be as they may, are particularly acutely counterproductive for small-scale producers in developing countries. The complex interplay between biotechnology patents and traditional agricultural practices has profound implications for global food sovereignty and environmental sustainability.

Moreover, the ethical dimensions of patenting life forms raise profound questions about the role of corporate control in the agricultural sector. The legal framework that supports the patenting of GMOs does not adequately address the socioeconomic and ecological costs borne by smallholder farmers and developing nations. The disproportionate influence of biotech corporations over seed patents exemplifies a broader trend of corporate consolidation and monopoly of the global food system.

## Consolidation of Corporate Control Over Seeds

One most troubling emerging trends is the rapid consolidation of seed hegemony into the control of a few large agrochemical corporates; just four companies—Bayer, Corteva, ChemChina, and Limagrain—now control 60% of the global commercial seed market (ETC Group 2019). These same companies also dominate the agrochemical pesticide market. These biotech giants, especially Bayer and Corteva, are aggressively patenting a wide range of plant genetic information, claiming exclusive rights even on traits that occur naturally (IPES-Food 2017).

This concentration of seed hegemony into corporate control and a small number of firms reduces the choice and autonomy of farmers (Gilbert 2014). It also raises ethical questions about the patenting of nature's building blocks and the privatization of life itself (Gilbert 2014). The ethical implications are

significant, as the commodification of genetic resources undermines the traditional knowledge and practices that have sustained agricultural biodiversity for generations.

If left unchecked, this trend could have catastrophic implications for food sovereignty, biodiversity, the environment at large, and a host of several socioeconomic dynamics and demographics. This becomes more grim as a handful of corporations gain a stranglehold over global food systems, and farmers, consumers, and nation-states become increasingly dependent on these patented proprietary technologies. The landmark case of *Bowman v. Monsanto Co.*, 569 U.S. 278 (2013), where the U.S. Supreme Court upheld Monsanto's patent on genetically modified soybeans, underscores the legal power wielded by these corporations.

### **Skyrocketing Costs to Farmers**

Patents allow biotech companies to charge exorbitant prices for GM seeds. Within just two decades, between 1995 and 2014, the per-acre cost of soybean and corn seeds spiked dramatically by 351% and 321% respectively, far outpacing the market price farmers received for these crops (Benbrook 2012). This squeezed profit margins, especially for small-scale producers who contribute more than 82% of food supply in the global south but have already been operating on thin margins.

Farmers also face restrictions on seed saving, a traditional cost-saving practice that has been the foundation of agriculture for millennia; as patent contracts often prohibit them from replanting seeds from their harvests, forcing them to repurchase seeds annually from the patent holders (Gilbert 2014). For resource-thin farmers in developing countries, these increased costs are often ruinous. The economic pressure exerted by these costs is exacerbated by the legal framework that enforces these patents.

Legal judgments have reinforced this dynamic. In the case of *Schmeiser v. Monsanto Canada Inc.*, [2004] 1 S.C.R. 902, the Supreme Court of Canada ruled in favor of Monsanto, finding that Percy Schmeiser had infringed Monsanto's patent by planting seeds that contained the company's genetically modified genes, even though the seeds had inadvertently blown into his fields. This case exemplifies the severe financial and legal repercussions for farmers.

### **Contamination and Economic Ruin**

GMO contamination is another serious growing concern. According to the *International Journal of Food Contamination*, almost 400 cases of GMO contamination occurred between 1997 and 2013 in 63 countries (Royte 2013). The very character of nature itself makes containment of GMOs impossible. Many plants are pollinated by insects, birds, or wind, allowing pollen from a GMO plant to move to neighboring fields or into the wild (Quist & Chapela 2001).

For farmers, the consequences have been catastrophic. Contamination sparks dramatic economic losses for farmers who face rejection from export markets that ban GMOs. Organic farmers suffering from contamination can lose their organic certification and the premium they earn for their organic crop (Penn

State Law 2001). In some cases, farmers have even been sued by biotech companies for patent infringement if their fields were contaminated by the company's patented genes (Penn State Law 2001).

The legal landscape surrounding GMO contamination further complicates these issues. In the landmark case of *Monsanto Canada Inc. v. Schmeiser*, [2004] 1 S.C.R. 902, the Supreme Court of Canada ruled that Monsanto's patent rights were infringed upon by a farmer whose crops were unintentionally contaminated with Monsanto's genetically modified seeds. This decision highlights the legal and financial vulnerabilities that small-scale farmers face in an environment dominated by corporate-controlled GMOs.

### **Threats to Biodiversity, Small-Scale and Traditional Agroecology**

The impacts of GMO patents are particularly devastating for small-scale and traditional farmers in developing countries. Prohibitions on seed saving undermine age-old farming practices and increase costs (Friends of the Earth Europe et al. 2019; Bold IP 2022). This makes small-scale farming unviable economically, threatening the livelihoods of millions of smallholder farmers who play a crucial role in global food security (Friends of the Earth Europe et al. 2019).

Small farmers also face reduced access to diverse, locally adapted seed varieties as a result of patenting (Bold IP 2022). The concentration of control in a few large firms further reduces their autonomy and choice, making them more dependent on the patent holders (Friends of the Earth Europe et al. 2019; Bold IP 2022). These factors appear to be undermining the sustainability of small-scale, traditional, and organic agriculture.

The case of *Bowman v. Monsanto Co.*, 569 U.S. 278 (2013), further illustrates the legal challenges faced by small-scale farmers. The U.S. Supreme Court's decision to uphold Monsanto's patent on genetically modified seeds has significant implications for farmers' rights to save and reuse seeds. This ruling underscores the broader trend of legal frameworks favoring corporate interests over traditional farming practices and food sovereignty.

### **Organic and Agroecological Alternatives**

While the biotech industry continues to push GMOs as the solution to feeding the world, the reality is that these patented technologies are concentrating power in the hands of a few corporations, increasing costs for farmers, and threatening the future of sustainable agriculture. Small-scale farmers, particularly in the Global South, are bearing the brunt of these negative impacts.

Rather than doubling down on harmful GMO technologies, we suggest that more people and governments need to adopt wholly organic and agroecological alternatives that empower farmers, protect biodiversity, and build resilience in the face of climate change. The future of planet earth and sustainable food sovereignty depends on these measures, which could include but are not limited to:

1. Strengthening antitrust enforcement to break up the seed and pesticide monopolies.
2. Prohibiting patents on seeds, plants, and other forms of life.

3. Shifting liability for GMO contamination to the patent holder.
4. Providing support and incentives for small-scale farmers to transition to agroecological practices.
5. Investing in public plant breeding programs to develop locally-adapted open-pollinated seed varieties.

Implementing these measures would help counteract the negative impacts of GMO patents and promote a more just, sustainable, and resilient food system. Legal precedents such as the recent European Court of Justice ruling in Case C-528/16, which restricts the patenting of gene-edited organisms, indicate a growing recognition of the need for regulatory frameworks that prioritize public and environmental health over corporate profits.

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