8

The Troubled Birth of the "Biotech Century": Global Corporate Power and Its Limits

Robert Falkner

Transnational corporations (TNCs) are powerful drivers of change in the global food system.[1] Nowhere is this more clearly evident than in the field of agricultural biotechnology. The development and commercialization of genetically modified (GM) crops is the fastest technological revolution that has ever occurred in agriculture. In less than two decades, from the 1970s to the 1990s, genetically modified organisms (GMOs) have moved from laboratory research through field testing to commercial production, and since the mid-1990s the global GM planting area has grown at an average rate of 10 percent annually. Led by the US firm Monsanto, a small number of powerful biotechnology firms have set out to reshape global markets for key commodity crops such as soybeans, corn, and canola, with more GM crops (e.g., rice, wheat, potatoes) in the pipeline.

At first sight, agribiotechnology seems to provide ample evidence of overwhelming corporate power in the global food system. But a closer look at the emergence of the GM food business reveals a more nuanced and complex picture. Indeed, the growth of agricultural biotechnology has not been straightforward, and has been met with resistance from consumers, food producers, retailers, farmers, and regulators. In Europe, the majority of consumers rejected GM food when it became available for the first time in 1996, and opposition to agribiotech has also sprung up in Latin America, Africa, and Asia. In the developing world, many countries are still weighing the pros and cons of adopting GM technology in their agricultural systems, and some have even turned down offers of GM food aid despite food shortages. GM food became one of the bêtes noires of the antiglobalization movement of the late 1990s, and continues to ignite heated public debates on how to control the power of TNCs such as Monsanto. In Europe, a system of precautionary GMO

regulations has been put in place to carefully test and monitor the environmental and health risks of GMOs, and other nations have also created their own safety regulations and laws. At the international level, a treaty on safety in GMO trade, the Cartagena Protocol on Biosafety, has entered into force, despite opposition from powerful business groups and a coalition of agricultural export countries led by the United States (for an overview of the global politics of GM food, see Falkner 2007a).

Measured against the industry's ambition and rhetoric of transforming global agriculture (see Williams, chapter 6, this volume), it is fair to conclude that "the agricultural biotechnology revolution appears to be a mixed success to date" (Andrée 2005, 135). While it is still early in the history of this new technology, the troubles that have afflicted the GM food revolution raise interesting questions about the power of business in global food governance and in international political economy more generally: Does the ongoing expansion of global GM crop production support the widespread claim that global corporate power is out of control and that social and political actors are failing to direct and shape technological innovation? Or does the worldwide mobilization of anti-biotech forces and the creation of stringent biosafety regulations at national and international levels suggest that social and political checks on international business and technology are working? Does the temporary closure of major European and Asian agricultural markets to GM food products demonstrate that global political space exists in which at least some degree of control over corporate power can be exercised?

This chapter seeks to engage with these questions by focusing on the political agency and power of corporations in the international politics of GM food. It examines recent cases of contestation that have slowed down, or at least redirected, the seemingly unstoppable march of biotechnology. This chapter focuses on the role played by tensions and conflict within the corporate sector: between biotech firms on the one hand and food retailers, agricultural traders, and farmers on the other; and within the biotechnology sector itself. By examining business conflict in the evolution of agricultural biotechnology, the chapter aims to contribute to a better understanding of the globalization of the agrifood system and the complex role that corporations play in that process. Business conflict, it is argued, serves to limit the power of the corporate sector and opens up political space for other actors to shape the future of agribiotechnology.

In discussing corporate power in agrifood governance, this chapter builds on the tripartite framing of power as outlined in the introductory chapter by Clapp and Fuchs. It goes beyond this framework, however, by positing the need to focus on the divisions that exist within the business community. Discussions about the relative influence of states, corporations, and societal actors in global governance tend to view corporate power as an aggregate phenomenon, contrasting it with public or social power. Of course, few analysts would naively presume that business is always united in its approach to global governance. But without an explicit acknowledgment that the business community is (potentially) fragmented, and that dynamics of corporate competition and conflict shape the involvement of corporate actors in international politics, the study of global governance would miss out on an important driving force of global change. The aim of this chapter, therefore, is to connect the discussion of business in global governance with the study of business conflict, thereby laying the ground for a neopluralist perspective on corporate power.

The analysis proceeds in four steps. The first section introduces the rise of agricultural biotechnology and gives a brief overview of the emergence and transformation of the biotech industry. The second section sketches the neopluralist perspective that informs the analysis in this chapter, with a special focus on the business-conflict model. The third section introduces three case studies of how business conflict has shaped the path of biotechnological innovation and commercialization. The fourth and final section summarizes the key findings.

The Birth of the "Biotech Century"

Modern biotechnology allows the targeted manipulation of genes in living organisms, which in turn has opened up a vast range of commercial applications in several industrial sectors, from pharmaceuticals to agriculture and environmental remediation. Agriculture emerged as an important focus of biotechnological innovation in the 1980s, as a growing number of small and medium-sized companies were experimenting with different uses of recombinant DNA techniques in plants and animals. Genetic engineering has allowed scientists to insert desirable traits into living organisms or to make plants resistant to pests, drought, herbicides, or other environmental stresses. Several different GM plants have since been developed, most notably soybeans, cotton, corn, canola, and rice.

The global market for GM crops is valued today at over $6 billion (Davoudi 2006), and is second only to medical appliances in modern biotechnology.

The early development of agribiotechnology was led by small and medium-sized companies, many of which had been spun off from research institutes and universities. Over time, with costs of research and commercialization rising rapidly, small biotech firms were gradually taken over by larger life science companies that sought to integrate agricultural and pharmaceutical applications. By the 1990s, the highly fragmented nature of the early biotechnology industry thus gave way to a more consolidated sector with a small number of large industrial players, concentrated in North America, Europe, and Japan.

As GMO innovations were moving from laboratory tests to field trials and commercialization, the process of industrial consolidation took on a new dynamic. From the mid-1990s onward, when the first GM crops were being grown on a commercial scale, a wave of mergers and acquisitions paved the way for a different industrial landscape that saw only a handful of large biotechnology firms dominate GM crop development. The United Kingdom's Astra and Sweden's Zeneca, two large pharmaceutical firms with stakes in agribiotechnology, merged in December 1998 to form the new company AstraZeneca. Only a year later, in December 1999, AstraZeneca and Novartis, the Swiss pharma producer, decided to spin off their respective agrichemical and agribiotechnological businesses and merge them to form Syngenta. And in April 2000, Monsanto and Pharmacia & Upjohn completed a merger of their pharmaceutical operations and created a separate company focused on agribiotechnology, under the name of Monsanto. A key factor behind this wave of mergers was the desire to achieve synergies particularly in the pharmaceutical sector and to broaden the application of genetic engineering techniques to other areas (Fulton and Giannakas 2001).

But the creation of Syngenta and Monsanto with a sole focus on the crops business also suggested that the agricultural and medical sectors were increasingly going their own ways. Against the background of a worsening public climate for GM crops in the late 1990s, combined medical and agricultural biotech firms were keen to separate out the different social, political, and economic risks involved in biotechnology and shield medical applications from the public controversies that began to engulf agricultural firms (King, Wilson, and Naseem 2002).

A different motivation lay behind the second wave of mergers that saw DuPont acquire Pioneer Hi-Breed in 1997, to become the world's largest seed company. Monsanto had kicked off this wave when it decided to take over DeKalb in 1996, and followed this up with further acquisitions in the late 1990s, including Holdens, Delta & Pine Land Co., Asgrow, and Agracetus (Joly and Lemarié 1998). Both DuPont and Monsanto pursued these acquisitions as part of a broader strategy of integrating crop development, agrichemical production, and seed distribution. This, they hoped, would give them greater control over the entire seed and agrichemical business and would put them in a strong commercial position as the sole suppliers to farmers in key markets. The industry is still far away from this vision but has already achieved oligopolistic control over the supply of key GM crop varieties (e.g., soybean, cotton) in countries such as the United States and Argentina (on the latter, see Newell, chapter 9, this volume). Today, after a process of continuous industry consolidation, less than a handful of companies control the global market for GM crops, with Monsanto being by far the dominant player. In 2005, GM crops were grown on an estimated 222 million acres around the world. Monsanto's GM crops accounted for more than 90 percent of the total biotech acreage, followed by the next largest biotech companies, Syngenta, Bayer, and Dow/Du Pont (Davoudi 2006).

Despite a decade of year-on-year growth of GM crop cultivation, the biotech revolution has so far failed to spread worldwide. The global GM crop area has grown steadily for the last ten years, at an average annual rate of around 10 percent. Still, the majority of all commercially grown GM crops can be found in only a handful of countries: the United States, Argentina, Brazil, Canada, and China (James 2006). The United States alone accounts for over half of the world's GM crop production. In contrast, large agricultural markets such as India and China are continuing to debate whether to allow large-scale commercialization of the full range of GM crops that are currently in use. And many of the key import markets, such as the European Union (EU), Japan, and Korea, have put in place stringent import regulations, including GMO labeling requirements and partial or outright bans on GMO imports. Moreover, in many countries where certain GM crops have been authorized for commercial sale, consumers and food retailers are refusing to buy or stock GM food products. The position of importing countries concerned about GMO trade has been further strengthened by the entry into force of the Cartagena Protocol on