

I Global Forces

The global circulation of animals—either live, dead, or in parts—reveals important tendencies in the capitalist world economy, especially regarding corporate power and economic control. While expanding their geographic reach, transnational corporations (TNCs) in the meat industry have increased their profits and economic control by gaining greater market shares, acquiring competing corporations, and increasing their influence over other economic actors (e.g., farmers). Furthermore, governments have supported both the global expansion and the greater economic power of TNCs in the meat industry.

Although the beginning of industrial meat production is often traced to the founding of the Chicago Stockyards in 1893, the global meat industry exists due to the spread in scale and scope of industrial production techniques. Confined animal feeding operations (CAFOs) are a major component of industrial production, and these depend on large quantities of affordable livestock feed. Corn and soybeans, and to a lesser degree canola, are central ingredients in industrial livestock feed and are thereby the foundation of the global meat industry. The feed industry exhibits some of the same global dynamics found in the global meat industry, particularly regarding corporate power and economic control. First, the global production of feed grains—particularly corn and soybeans—has increased dramatically since 1960, and especially after 1990. This global increase in production occurred as both chemical and grain corporations expanded their global reach. Governments supported this global expansion in important ways, most notably by subsidizing production. Second, chemical corporations increased their economic power through the development of genetically engineered (GE) seeds, which contributed to more concentrated

markets and more corporate control over inputs that farmers rely upon. We look briefly at the trends in the global feed industry to reveal some insights about tendencies in the capitalist world economy and the global meat industry, as well as to highlight the resistance that has emerged to the global expansion of the feed industry.

First, a tremendous expansion occurred in the production of feed during the past few decades. From 1990 to 2017, global corn and soybean production more than doubled—from 481 MMT to 1,033 MMT for corn, and 104 MMT to 336 MMT for soybeans (e.g., see Winders 2017, 3, table 1.1).¹ In 2016, the United States produced 384 MMT of corn, with China second at 219 MMT, followed by Brazil at 98 MMT, the EU at 62 MMT, and Argentina at 41 MMT of corn. Similarly, the United States produced 119 MMT of soybeans, followed by Brazil with 114 MMT, and Argentina and China produced 58 MMT and 12.9 MMT, respectively. The United States and Brazil, then, have been at the forefront of the global expansion of soybean production; and the United States, China, and Brazil have driven the expansion in global corn production.

Part of the increase in the global production of corn and soybeans was tied to an expansion of land used in producing these commodities. From 1990 to 2016, worldwide corn production expanded from 129 million hectares to 189 million hectares, and soybean production increased from 54 million hectares to 119 million hectares.² China led the expansion of land used for corn production, while South America led in the expansion of land used for soybean production. Corn area harvested in China increased from 21.4 million hectares in 1990 to 36.7 million hectares in 2016. In the same period, corn area harvested increased in Argentina rose from 1.9 million hectares to 4.9 million hectares, and Brazil from 13.5 million hectares to 17.6 million hectares harvested. South American soybean production had a larger expansion in land harvested in this period: Argentina went from 4.7 to 17.4 million hectares harvested, and Brazil increased from 9.7 to 33.9 million hectares. By contrast, the number of soybean hectares harvested in China decreased during this period, from 7.5 to 7.2 million hectares. The United States saw an expansion in corn and soybean production, as well, from 27 million hectares of corn to 35.1 million hectares, and from 22.8 million hectares of soybeans to 33.4 million hectares. More than half of the global expansion in soybean hectares, then, occurred in Argentina, Brazil, and the United States.

This expansion in the global production of corn and soybeans fueled an increase in international trade in these commodities. Argentina, Brazil, and the United States account for the majority of corn and soybean exports in the world. The United States is the world's leading exporter of corn, with Brazil second and Argentina third. And Brazil is the leading exporter of soybeans, with the United States second and Argentina third. The United States and Brazil, then, dominate the world trade in feed grains. Most of the feed grain from the western hemisphere is destined for Europe, Asia, and northern Africa. This trade pattern in feed grains, then, is intimately tied to the expanding meat industry in these regions, which have seen meat production increase significantly.

Governments and TNCs have been central to this increased global production and trade of feed. First, governments have liberalized national agricultural policies, which had attempted to limit agricultural production through supply management programs (Winders 2009, 2017). This shift in national policies has allowed many farmers across the globe to begin producing feed grains where they had previously faced production controls. At the same time, governments have worked to liberalize trade, as free trade agreements have proliferated (Winders et al. 2016). Free trade agreements, such as NAFTA, and the creation of the WTO in 1995 have removed trade barriers that had previously restricted trade in corn and soybeans. Therefore, liberalization in national agricultural policies and trade policies has contributed to both producing and trading more feed grains.

Second, TNCs have played a role in the increase in the global production and trade of feed grains, in part by gaining greater control over markets. Just a handful of grain corporations have come to dominate trade in the global feed industry: Archer Daniels Midland (ADM), Bunge, Cargill, and Louis Dreyfus. These corporations control more than “70 percent of the global grain market, though they face growing competition from new companies in Asia, including Noble Group, Olam, and Wilmar, which are three Singapore-listed agribusinesses; Cofco in China; and Glencore Xtrata in Switzerland” (Winders 2017, 7). Similarly, a handful of companies control markets for key inputs in feed grains, such as seeds. In 2015, just a few chemical corporations controlled about 70 percent of the global seed market: BASF, Bayer, Dow, Dupont, Monsanto, and Syngenta (Turzi 2017, 26). Corporate concentration has been rapid over the past few decades in the seed industry (Howard 2009), as Monsanto and other leading seed

corporations have acquired or merged with numerous smaller seed and chemical companies. Most recently, the seed market has become even more concentrated as Dow and DuPont merged in 2017, and Bayer acquired Monsanto in 2018. Such increased market concentration has had two effects. First, the larger companies have more resources with which to expand their global reach. Second, the mergers and acquisitions behind such market concentration often involve corporations from multiple nations—such as Bayer (Germany) and Monsanto (United States)—which again increases the global reach of the corporation. In both of these ways, then, greater market concentration contributed to the emergence of a truly global feed industry.

In addition to this geographic expansion of corn and soybeans, the development of GE corn and soybeans has also fueled the global expansion of the meat industry. Globally, GE production has expanded from 1.7 million hectares in 1996 to 181 million hectares in 2014 (James 2014). Importantly, though, just four crops account for more than 90 percent of GE production worldwide: canola, corn, cotton, and soybeans. First commercially available in 1996, three of these GE crops—canola, corn, and soybeans—are central ingredients for feed grains. The top three countries in terms of GE planting—Argentina, Brazil, and the United States—are also the leading exporters in corn and soybeans. More than 90 percent of corn and soybean production in these countries is GE. Therefore, the expansion of global corn and soybean production was driven by the adoption of GE seeds. And this expansion of feed production from GE seeds has, in turn, extended corporate control over farmers by adding legal power because the seeds are patented. For example, chemical corporations have required farmers to sign technology agreements that limit farmers' ability to save seeds, include a technology fee, and set a premium price for the seeds (Eaton 2013; Kinchy 2012). All of this, of course, works in favor of the corporations making a big profit.

These changes in feed grain production—the geographic expansion and the rise in GE seeds use—have contributed to greater consolidation and concentration in farming that have imperiled the very existence of some farmers. Guptill and Welsh (2014) explain that Canada and the United States have seen a decline in mid-size farms and an increase in large farms. In Argentina and Brazil, the expansion of soybean production has led to land conflicts between peasants and large landowners, with some peasant

leaders being murdered (Lapegna 2016, 37–39; Turzi 2017, 87). Even without such violence, the global expansion of corn and soybean production threatens many farmers by contributing to declining prices in the long term that lead farmers to produce more (e.g., by adopting GE seeds or expanding the amount of land farmed) or to leave farming altogether.

Such threats have provoked resistance in various ways, as many farmers in the global north and smallholders in the global south have challenged these changes in feed grain production. In the global north, farmers have organized against GE crops in various ways. In 2004 and 2005, for example, members of the French farmer organization *Confederation Paysanne* engaged in “crop-pulls” in which activists uprooted GE crops in several Monsanto open-air field trials. In Canada in 2002, organic canola farmers filed a class action lawsuit against Monsanto. In the global south, smallholders have often mobilized to protest these changes. In Argentina, for example, peasants “organized several roadblocks and filed suits against agribusinessmen, demanding reparations for damages to their farms” when glyphosate herbicide used with GE soybeans drifted to their fields and destroyed the peasants’ cotton and vegetable crops (Lapegna 2016, 1). Despite such resistance from farmers and smallholders, the production of GE feed grains continues to spread across the globe, very much in tandem with the growth of the global meat industry.

The development of the global meat industry has depended on the expansion of global feed production, and vice versa. Turzi (2017, 19n10) points out clearly the important connection between production in each of these industries: “Small increases in per capita meat consumption—in the context of feedlot dominance—will lead to large increases in demand for feed proteins.” And, both the global meat industry and feed production have rested on three key factors: (1) the liberalization of the world economy, making trade easier for businesses, including expanding trade and production networks; (2) the development of technology that supports market concentration and corporate economic power; and (3) support from national governments to encourage, facilitate, and even subsidize the global expansion.

The chapters in part I help to illustrate and analyze these global forces. First, in chapter 2, Howard discusses the role of TNCs in the global meat industry. Howard offers a case study of three corporations central to the global meat industry—JBS of Brazil, Tyson of the United States, and WH

Group of China. Through these case studies, Howard shows how states have supported corporations in their drive to expand globally through different kinds of subsidies. Next, in chapter 3, Bailey and Tran illustrate how environmental risks and risks in the production process inhibit increased market concentration and corporate power in the global seafood industry. Yet, they also note how three factors—international trade, feed production, and biotechnology (i.e., genetic engineering)—might allow for greater corporate concentration and power. These chapters, then, examine global forces that have shaped the expansion of the global meat industry over the past several decades.

Notes

1. Data on feed production comes from USDA FAS n.d.
2. Ibid. Data is from “area harvested.”