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Against Free Markets, Against Science? Regulating the Socio-Economic Effects of Biotechnology*

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ABSTRACT This study challenges the assumption that abstract "globalization" forces are driving transformations in the relationships between states and markets. Employing three cases of policy debate regarding the regulation of agricultural biotechnology (ag-biotech), we examine the role of discourse in the formation of neoliberal regulatory schemes. We show that one important mechanism for the successful institutionalization of neoliberalism in the area of ag-biotech has been the linking of neoliberal discourse with a discourse of *scientism*. This strategic combination of discourses has been used by advocates of biotechnology to depoliticize ag-biotech—that is, to remove it further from political debate and state intervention. However, in each case examined here, certain state actors resisted industry demands for minimal regulation, and in each context this resistance produced markedly different outcomes.

The last two decades have been widely described as a period of rising neoliberalism—that is, a shift toward "market rule," through state policies such as trade liberalization and reduced intervention into economic affairs in general. In this study, we examine the mechanisms through which the regulation of agricultural biotechnology (ag-biotech) has come to reflect neoliberal ideas. One of the main objections to ag-biotech is that it has the potential to negatively impact national agricultural economies by accelerating consolidation and small farm loss, creating farmer dependence on multinational corporations, and driving prices down by stimulating overproduction. However, states around the world have been reluctant to regulate ag-biotech beyond environmental and health protections. What explains

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this absence of state protections against the unwanted socio-economic effects of ag-biotech?

A prevalent approach to understanding the reduction of state intervention into economic affairs is to consider the effects of globalization on state power to regulate markets. Many analysts of agri-food systems assume that a shift toward neoliberalism or market rule emerged as the inevitable result of an abstract and exogenous process of globalization (Bonanno et al. 1994). There is no denying that, since the 1970s, global trade, international financial transactions, and migration, as well as other forms of transnational cultural exchange, have dramatically increased. However, there is little evidence to suggest that these transformations are driving the trend toward a neoliberal orientation to state-market relations. Indeed, the most detailed and careful empirical work indicates that institutional change toward neoliberalism occurs as the result of "political struggle, diffusion, imitation, translation, learning and experimentation" (Campbell and Pedersen 2001:3)—in short, through the efforts of state actors and elites.

Likewise, the cases examined here challenge the assumption that abstract "globalization" forces are driving transformations in how states regulate markets. To the extent that "free market" policies are established with respect to ag-biotech, it is an accomplishment—a result of struggle. Neoliberalization is an explicit political project, not a structural inevitability. In each case, we see that certain state actors resisted industry demands for minimal regulation, producing markedly different outcomes in each context.

To best understand these often contentious processes of neoliberalization, we adopt a discursive institutionalist approach, tracing the emergence of neoliberalism as a policy discourse and the ways in which it intersects and clashes with other discourses at play in debates over ag-biotech regulation. As a result of these contextually specific confrontations of discursive structures, each of our cases reflects the imprint of neoliberalism in a distinct way. We find that one important mechanism for the successful institutionalization of neoliberalism in the area of ag-biotech has been the linking of neoliberal discourse with a discourse of *scientism.* This strategic combination of discourses has been used by advocates of biotechnology to depoliticize ag-biotech—that is, to remove it further from political debate and state intervention. This dual discourse strategy was largely successful in all of our cases. Importantly, however, despite proponents' ongoing work to depoliticize ag-biotech by yoking scientism and neoliberalism, opponents

strenuously pushed for the socio-economic regulation of ag-biotech and had varying degrees of success.

Our case studies begin in the early 1980s, during the first major phase of neoliberalization in the United States and Europe. The first product of ag-biotech to be introduced was recombinant bovine growth hormone (rBGH). When rBGH was introduced in the United States, some farmers and farm advocates opposed it because they believed it would disadvantage smaller dairy producers. A short-lived ban on rBGH was based on this socio-economic concern for protecting family farms. Nevertheless, the drug was ultimately approved for use. As in the United States, when rBGH was introduced in Europe, concerns about the product were based on its likely disruptive socio-economic effects. The European Union enacted several consecutive moratoria on the drug, ultimately passing a permanent ban. However, when proposals were introduced to create a policy that would institutionalize socio-economic evaluation of new products of biotechnology, those proposals failed to be turned explicitly into EU law.

Following our analysis of these two early debates about how states should regulate ag-biotech, we shift our focus to a later phase in the global project of neoliberalism and to the international level of governance. Studies of the shift to neoliberalism typically acknowledge the role of the WTO in setting rules and norms of trade, but most overlook the role of other international bodies, particularly the United Nations. The UN plays an important role in setting international norms and providing ideological resources for state decision-making. In the negotiations for a United Nations Protocol on Biosafety, a coalition of representatives of Third World countries advocated for strongly worded socio-economic regulation of biotechnology. After several years of negotiations, their original policy ideas were stripped down to a single, relatively weakly-phrased treaty article (Article 26 of the Cartagena Protocol on Biosafety, entitled "Socio-economic considerations"). However, at some level, this case can be considered a success for those who advocate socio-economic regulation of biotechnology. Although the effects of this protocol provision are as yet unclear, it illustrates the "resistibility" of neoliberalization and the possibility of de-linking scientism from free market discourse.

Neoliberal Discourse and Agrarian Political Economy

The widespread embrace of neoliberal macroeconomic policies around the world and the decline of Keynesian economics since the 1970s mark a distinctive shift in economic governance. These changes,

as they affect agri-food systems, have been a central concern of rural sociologists since the late 1980s. We observe two main orientations toward understanding these changes. The first emphasizes *globalization* as the cause of transformations of state-market relations. Here, the primary concern is the emergence of hyper-mobile transnational corporations (TNCs) and the question of whether national states retain the ability to regulate the activities of corporations. The second orientation treats neoliberalism as an idea, discourse, project, or ideology. In these studies, globalization may or may not be part of the explanation for the trend toward neoliberalization. Indeed, some argue that globalization itself is a discourse or project. In our cases, we believe the evidence much more strongly supports the latter orientation.

Scholars adhering to the globalization thesis assert that, because of globalization, particularly the emergence of "hyper-mobile" TNCs, "nation-states have seen the erosion of some of their primary prerogatives such as the regulation of corporate activities and the ability to protect its [*sic*] citizens from decisions made by distant actors" (Bonanno and Constance 2006:62). Critics of globalization argue that individual national governments have lost their ability to counter the harmful social and environmental impacts of global capitalism because they are unable to effectively regulate and monitor international agencies and corporations (Higgins and Lawrence 2005; Horsman and Marshall 1994; Ohmae 1995; Sassen 1996). An imbalance emerges as capital and finance are increasingly mobile and transnational, while social and environmental problems are fixed within national boundaries. The familiar race-to-the-bottom argument holds that this shift privileges transnational corporations and institutions at the cost of social, environmental, and labor conditions (Brecher and Costello 1994).

Recent research has added some nuance to the globalization thesis by questioning the extent to which the acceleration of globalization severely weakens state power (Guillen 2001, Weiss 1997). For instance, a study by Bonanno and Constance (2006) attempted to identify the relationship between the state and corporations in a context of globalization, concluding that while TNCs influence state actions, segments of the state resist corporate globalization. Furthermore, TNCs rely upon certain forms of state assistance (Bonanno and Constance 2006). Therefore, globalization produces a more complex and contradictory relationship between states and corporations than the basic "globalization thesis" suggests. Even this more nuanced approach is problematic, however, because it treats globalization as a condition,

"predetermined by some 'hidden hand' of international market forces" (Tickell and Peck 2003: 164).

A wide range of studies has demonstrated that globalization itself is politically negotiated and should be recognized as part of an explicit political project that has both advocates and opponents. For instance, Sarah Babb (2005) describes the way in which "structural adjustment"—market reforms to encourage liberalized markets and foreign investment—came to replace "development" as the conventional wisdom for the governments of poor nations, beginning in the 1980s. Babb notes that "structural adjustment" was a policy discourse explicitly developed by World Bank President Robert McNamara and cultivated by Western elites, "in keeping with the ascendant Reagan revolution" (Babb 2005:200). Governments were easily persuaded to adopt policy reforms in line with the new discourse because of the outbreak of the Third World debt crisis in 1982 and economic pressures to attract foreign investors—who happened to favor neoliberal policies. They also took advice from U.S.-trained economists who strongly believed in neoliberal market reforms. Babb (2005) explains:

> The debt crisis made persuading governments to implement policy reforms easier because such reforms could be required as preconditions to bailout funds [from the World Bank and International Monetary Fund]. Privatization was particularly attractive because it both satisfied multilateral lenders and provided much-needed revenues. But there were also more subtle pressures: Trapped under unwieldy debts and stagnating economies, governments were increasingly courting foreign investment portfolio investors, who were more likely to be attracted to governments that provided strong guarantees to property rights and did not interfere excessively in markets. Governments also came to rely on the advice of U.S.-trained economists in high government posts, whose presence helped foster investor confidence—and who tended to be fervent believers in the need for market reforms (Pp. 200–201).

Important to note here is that, while the debt crisis made it easier to persuade governments to embrace a new vision of the global economy, elite architects of the "structural adjustment" policy discourse, not economic forces alone, were responsible for these transformations.

In another example of a study that challenges the "hidden hand" approach to understanding globalization, Lourdes Gouveia (1997) examines economic restructuring in Venezuela's agro-food sector since

the debt crisis of the 1980s. Gouveia finds that, while "exogenous" forces such as the International Monetary Fund (IMF) and World Bank envisioned a complete overhaul of the agro-food sector, these multilateral agencies were "less than formidable" in the face of local contingencies and contestation (1997:315). Not only were globalization and neoliberalization explicit political projects, they were also strongly resisted by both state actors and civil society groups, which produced a wide variety of outcomes in policymaking. However, despite local heterogeneity and diversity, Gouveia identifies a broad trend toward a neoliberal agenda in Venezuelan state policies in the late 1990s. She concludes from this finding that neoliberalism, as a *discourse,* produces observable institutional changes, despite resistance and contestation. She explains:

> The neoliberal discourse of globalization represents the 'narrative' component of a political project to reformulate social relations and material practices. It is important not to underestimate the extent to which these discourses constitute a sort of 'internal colonization' which ultimately precludes us from envisioning and articulating alternative projects (Gouveia 1997:309).

These and many other studies suggest that the best way to understand the rise of so-called "globalization" and "neoliberalism" is to treat both as policy discourses aimed at supporting a political project pursued by elites. Particularly apt is Philip McMichael's description of globalization as a "historically specific project of global economic (financial) management...prosecuted by a powerful global elite of financiers, international and national bureaucrats, and corporate leaders" (McMichael 1996:28). This perspective re-inserts the state (among other actors) as an active agent in the institutional changes that are popularly understood to be "symptoms" of globalization. As various studies have shown, state power is maintained and remains critical in the drafting and implementation of both national and international economic policies (Hirst and Thompson 1996; Kapstein 1996). This challenges the idea that states have been rendered irrelevant by globalization forces—indeed, states themselves have been crucial actors in creating "free trade" agreements and other institutions that favor transnational capital (Peine and McMichael 2005). Capital-state collaboration, rather than abstract globalization forces, is responsible for the expansion of neoliberal policies on a global scale (Tabb 1997; Wood 1997).

Viewing globalization and neoliberalization as projects pursued by elites rather than inexorable trends requires a different type of analysis

than those based on the assumptions of the globalization thesis. Institutional analysis, particularly discursive institutionalism, offers a promising approach to understanding the rise of neoliberalism. Discursive institutionalism aims to understand how institutions are "constituted, framed, and transformed through the confrontation of new and old discursive structures—that is, systems of symbolic meaning codified in language that influence how actors observe, interpret, and reason in particular social settings" (Campbell and Pedersen 2001:9). In general, those adopting this approach hypothesize that the conditions for change include the *perception* of political-economic crisis and the existence of alternative discourses. The mechanisms for change are often described as "bricolage"; that is, "change results from the deliberate modification and recombination of old institutional elements in new and socially acceptable ways" (Campbell 2001:164). Methodologically, discursive institutionalism proceeds through the archaeology of texts to draw historically specific descriptions and explanations.

While we take a discourse analytic approach to understanding struggles over ag-biotech regulation, we wish to avoid reinscribing the distinction between political economy and cultural studies that persists in the sociology of agriculture. As Buttel observes, "many of those who have strived to remake rural sociology along the lines of cultural sociology/anthropology, postmodernism, social constructionism, and discourse analysis have tended to be ambivalent about, if not reject, agrarian political economy" (2001:172). Similarly, those who emphasize political economy, such as in the food regimes literature (Friedmann and McMichael 1989), tend to neglect discourse and ideas as components of the political project of globalization. In such studies, "neoliberal discourse" is often mentioned, but remains unspecified and undertheorized. In this study, we hope to indicate one way in which to erode the distinction between discourse and political economy. Although the focus is on discourse, the political-economic implications should be clear, because our focus is specifically on the state's ability to regulate ag-biotech markets. In policymaking, neoliberal discourse has produced patterned trends toward agendas that favor the ag-biotech industry over the cultural and economic interests of small farmers. At the same time, resistance to neoliberal agendas has created varying degrees of possibility for non- or post-neoliberal futures.

As discourses, globalization and neoliberalism are often conflated; it is important, analytically, however, to pull them apart and examine their histories as distinct but complementary frames of reference.

Mustafa Koc (1994) argues that in the mid-1970s and early 80s "globalization emerged as a discourse involving both concrete historical processes and a selective ideological interpretation of these processes" (1994:273). Globalization, he argues, has always been a feature of the capitalist world economy. However, in the wake of the economic crisis of the 1970s, one interpretation of globalization became hegemonic: a neoconservative version that provided rhetorical justification for a wide range of transformations, from attacks on the welfare state to military interventions in Panama and the Persian Gulf. Adam Tickell and Jamie Peck (2003) agree. They characterize the orthodox understanding of globalization as "a notion of increasingly borderless market extension, an apparently all-encompassing 'condition' in which market rules and competitive logics predominate, while the political leverage of nation-states recedes into insignificance" (Tickell and Peck 2003:163). This discourse of unstoppable globalization depoliticizes governmental attempts to deregulate markets, cut back on welfare, and liberalize trade by casting them as unavoidable responses to a condition beyond the control of any government. Or, as Pierre Bourdieu puts it, globalization is "a myth in the strong sense of the word, an *idée force*, an idea which has social force, which obtains belief. It is the main weapon in the battles against the gains of the welfare state" (1998: 34). The true force of globalization derives from its discursive power as a framing ideology for political and economic actors in national contexts.

The discourse of neoliberalism complements the discourse of globalization in a specific way: if globalization is the "problem" (the present condition of the world), neoliberalism is the "solution" (the necessary and appropriate response to this condition). The roots of neoliberalism as a "utopian political ideology" can be traced to a small intellectual movement in the 1970s, "stitched together from diverse strands in free-market economics, individualistic philosophy and anti-Keynesian politics" (Tickell and Peck 2003:166). Through a long and contested process, neoliberalism has become the contemporary ideological "commonsense," a discourse that is "so strong and so hard to fight because it has behind it all the powers of a world of power relations" (Bourdieu 1998:95). Although there are many different versions of neoliberalism, it most commonly means support of "market deregulation, state decentralization, and reduced state [or political] intervention into economic affairs" (Campbell and Pedersen 2001:1). Neoliberalism typically promotes "free-market solutions to economic problems....[and is based on] a deep, taken-for-granted belief in neoclassical economics" (Campbell and Pedersen 2001: 5). In its

twentieth and twenty-first century manifestations, this idea suggests that markets, not governments, should regulate economic transactions. The global prominence of neoliberalism as a discourse that shapes policy debates has grown in recent years with the establishment of "free trade" agreements and zones and the World Trade Organization (Campbell and Pedersen 2001).[1]

If we acknowledge that neoliberalism is a policy discourse, the ascendancy of which was by no means inevitable, it is analytically possible to see that neoliberalism "was, and is, resistible" (Tickell and Peck 2003:22). In the remainder of this article, we examine three instances of agricultural biotechnology policymaking in which neoliberal policy ideas came into conflict with both earlier discourses of social welfare protection and counter-hegemonic discourses such as "food sovereignty." We explore the active construction of neoliberalism and show how the linking of the discourse of neoliberalism with another powerful discourse—scientism—has allowed elite actors to largely prevent the socio-economic regulation of agricultural biotechnologies. However, it is important to note that these political struggles have led to somewhat different outcomes in different settings; that is, resistance has had varying degrees of success depending on the institutional context.

Depoliticizing Ag-Biotech

Tickell and Peck argue that "one of the more far-reaching effects of...neoliberalisation has been the attempt to sequester key economic policy issues beyond the reach of explicit politicization" (2003:175). Market logics have been naturalised and, in most cases, "implicitly rejected is any serious engagement—intellectual or political—with the challenges of economic regulation and strategy. One of the quiet successes of neoliberalisation has been to place these discussions practically 'off limits' in mainstream political discourse" (Tickell and Peck 2003:177). In the area of ag-biotech, one important mechanism for this depoliticization of economic issues has been the linking of neoliberalism with a discourse of scientism. This is clearly seen in

[1] Although the reduction of state intervention is one of the premises of neoliberal economic policy, it could be argued that neoliberalism involves not a reduction of state intervention, but rather a shift in the role of the state away from the protection of social welfare toward the protection of capital accumulation and the unobstructed flow of commodities and capital. Neoliberalism may indeed require an increased state role, in the form of "corporate welfare" as well as military intervention in order to enforce the new economic and cultural order. The discourse of neoliberalism, therefore, does not necessarily match the political and economic reality. Nevertheless, the neoliberal discourse is used to discourage or forbid states from regulating trade in biotechnology.

present-day policies of the United States and the European Union, as well as global trade agreements including the World Trade Organization.

Scientism, as we define it here, is the belief that policy is best dictated by scientific reasoning, since science is presumed to transcend human values and interests and to provide answers upon which all can agree (Kleinman and Kinchy 2003b; see also Jasanoff 1995). The idea is rooted in a perception of the separation of science and values, a boundary that was cultivated in the earliest efforts to create science as a profession, but dates back at least to Plato (Bruce 1987; Daniels 1967; Gieryn 1999; Proctor 1991). Scientism is linked to a belief in the superiority of facts over values in terms of credibility and cognitive authority. The stature of science rests on its claims to be value-free (Nelkin 1995; Proctor 1991), and its political neutrality is commonly taken for granted. Thus, science and scientists are considered the best possible arbiters of controversy, clearing away the tangle of politics and opinion to reveal the unbiased truth (see Nelkin 1995:452). Bourdieu observes that the political project of neoliberalism is "aimed at putting into question all the collective structures capable of obstructing the logic of the free market" (1998:96). Scientism contributes to this project by delegitimating messy political debates in favor of "value free" assessments of risks and benefits.

Debates about ag-biotech are simultaneously about neoliberalism and scientism because they often explicitly or implicitly address the role of the state in regulating markets and protecting social welfare. The products of ag-biotech emerged simultaneously with the first phase of neoliberalization in the early 1980s, and debates about the (de)regulation of these products—from recombinant bovine growth hormone to genetically modified herbicide-tolerant corn—have reflected the growing dominance of neoliberal policy ideas since that time, in both the global North and South. State decisions to adopt neoliberal policies are active choices, contested within the state and between the state and other actors. In the area of ag-biotech, and we suspect in other areas as well, such decisions are shaped not only by an ideological commitment to free markets, but also by a largely unspoken commitment to scientism. The ag-biotech industry has achieved its (de)regulatory goals by merging these powerful discourses.

In the United States, rather than grappling openly with the implications of ag-biotech for agricultural industries and rural livelihoods, federal regulatory agencies have focused narrowly on human health effects and some environmental issues. There are three U.S. agencies responsible for evaluating distinct aspects of ag-biotech: the Department of Agriculture (USDA), the Food and Drug Admin-

istration (FDA), and the Environmental Protection Agency (EPA). Companies seeking approval for a new biotechnology product may need all three agencies to sign off, depending on the characteristics of the product. The FDA is concerned with food safety and regulates ag-biotech products if they are understood to be substantially different from their conventional relatives (which are already understood to be safe). Because most ag-biotech products are assumed to be substantially equivalent to ordinary food products by the FDA's standards, the agency tends not to require pre-market approval. The USDA is responsible for plant pests, and, therefore, is concerned with the possibility that genetically engineered plants may have unintended effects, such as increasing weeds or vulnerability to pathogens. The EPA is responsible for regulating pesticides and, thus, has had an important role in the approval of Bt crops (plants that produce their own pesticide). Throughout this administrative network, there is no institutionalized requirement for socio-economic regulation, and regulation is kept to a minimum in the absence of clear evidence of risk to human health or the environment.

Although the European Union has been more reluctant than the United States to accept ag-biotech products, recently, it too has developed a policy of evaluating only the relatively depoliticized issues of health and safety rather than socio-economic implications. The evaluation of ag-biotech products today has been the task of the Scientific Panel on Genetically Modified Organisms (GMO Panel) of European Food Safety Authority (EFSA). The EFSA is an independent agency established in 2002 by the European Community. According to its own statements, "EFSA provides objective scientific advice on all matters with a direct or indirect impact on food and feed safety, including animal health and welfare and plant protection" (European Food Safety Authority 2006: "About EFSA"). The goal of the EFSA's risk assessments is to provide the European Commission, European Parliament and Council with "a sound scientific basis for defining policy-driven legislative or regulatory measures required to ensure a high level of consumer protection with regards to food and feed safety" (European Food Safety Authority 2006: "About EFSA").

The EU adopted this approach to ag-biotech regulation under pressure from the United States and other trading partners, exerted through the World Trade Organization (WTO). The WTO's Sanitary and Phytosanitary (SPS) Agreement is one of the most globally significant policies on the evaluation of ag-biotech. The SPS Agreement was formed during the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) negotiations (1986-1994), the same

negotiations that resulted in the formation of the WTO. It was the first time that agricultural issues were brought into negotiations on global trade. The SPS Agreement does not specifically deal with ag-biotech, but with food issues more generally. It aims to allow countries to protect the health and life of their consumers, animals, and plants against pests, diseases, and other threats to health, while preventing the use of health measures in an unjustified, arbitrary, or discriminatory fashion. That is, the agreement allows countries to block imports of a food product that poses a health risk, but not to selectively block imports from certain countries while allowing others. To meet this objective, the SPS Agreement requires that the measures countries take either be based on scientific risk assessment or comply with the standards of one of three existing international bodies (which also use scientific risk assessment). These international bodies include: Codex Alimentarius for food safety standards, International Plant Protection Convention (IPPC) for plant health standards, and Office of International Epizooties (OIE) for animal health standards. A government that believes that another country is violating the SPS Agreement may bring a case before the WTO. If a measure is found to be in violation of the SPS Agreement, the offending government has the option of either changing the WTO-inconsistent measure or keeping it and compensating the complaining party for the value of impaired trade.[2]

All of the policies discussed above are consistent with neoliberal ideas about the role of the state with respect to the market. However, these policies are justified not only as consistent with neoliberal principles, but also as a matter of "sound science." Indeed, advocates of ag-biotech denounce restrictions on genetically engineered products as "unscientific" as least as often as they call them "protectionist" or "against free markets." Labeling socio-economic concerns about ag-biotech trade "unscientific" has been an effective strategy for depoliticizing the regulation of ag-biotech. This rhetorical strategy simultaneously asserts that ag-biotech evaluation should be a scientific matter and that socio-economic concerns are not scientific – and as such should not be discussed. Serious engagement with the economic matters associated with the introduction of ag-biotech is, therefore, off limits. This strategy appears to be an effective contribution to the neoliberal project, because scientism and neoliberalism are mutually reinforcing. When critics of ag-biotech challenge the neoliberalization of social welfare

[2] For the WTO's overview of the SPS Agreement, see http://www.wto.org/english/tratop_e/sps_e/spsund_e.htm. For more information see http://www.aphis.usda.gov/is/sps/mod1/1backgrnd.html.

protections, their opponents emphasize the importance of science-based decision-making. Conversely, when policymakers advocate broadening the definition of scientific assessment, their opponents emphasize the dangers of interfering with the free market.

Opponents of ag-biotech have rarely developed strategies to simultaneously struggle against both neoliberalism and scientism. Today, as Buttel (2005) observes, opponents of ag-biotech in the global North appear to accept the dominant terms of debate, basing their opposition on scientifically measurable or anticipated effects on environmental and human health. This position challenges neither the neoliberal project nor scientistic modes of regulation.

However, this has not always been the case, as indicated by the debates around recombinant bovine growth hormone in the United States and Europe, discussed in the next section. Nor is this shift away from a socio-economic critique of ag-biotech a universal trend. Indeed, as suggested by the debates around the Biosafety Protocol, described later, although debates about the socio-economic implications of ag-biotech originated in the United States in the early 1980s (Schurman and Munro 2006), such issues are now primarily taken up by scholars, activists and policymakers in the global South. What all of these cases indicate is that neoliberalization is an ongoing political project, the success of which was by no means inevitable. However, in the area of ag-biotech, resistance to neoliberalization has been particularly difficult because of the dominance of a discourse of scientism that has institutional roots in a wide range of regulatory bodies.

Recombinant Bovine Growth Hormone in the US and EU

The first ag-biotech products to be introduced to the market were not genetically modified crops (the main objects of contention today) but rather several brands of a dairy hormone produced through biotechnology. Recombinant bovine growth hormone (referred to variously as rBGH, BGH, BST and rBST) was developed to increase milk production in dairy cows. In the mid-1980s, several agrochemical companies that had developed this drug sought approval to market it under their brand names in both the United States and Europe. Thus, the main question for policymakers was whether the government should permit the widespread use of ag-biotech despite the likely destabilizing effects on existing systems of agricultural production.

The regulation of rBGH was highly contentious, not only because it was the first product of biotechnology intended for widespread agricultural use, but also because of issues specific to the U.S. and

European dairy industries at that time. The debates over rBGH in the United States and Europe took place during a period of budget crisis and major agricultural policy reforms. "Agricultural exceptionalism," the belief that agriculture is "unlike any other economic sector, and, as such, warrants special government support" was the original basis for the development of agricultural policy in the US and Europe (Skogstad 1998: 467). However, in the 1980s and 1990s, this model came under strong pressure from critics who questioned whether agriculture should continue to receive special treatment. Furthermore, in the mid-1980s, both the United States and EU governments were attempting to gain control over a crisis of overproduction in the dairy sector.

In the United States and the EU, rBGH underwent an official scientific risk assessment process, by the Food and Drug Administration (FDA) and the Committee of Veterinary Medicinal Products (CVMP), respectively. In the United States, the FDA was to have final say on whether or not rBGH could be marketed. In contrast, the CVMP served only as an advisory body to the European Union government. In neither of these contexts did the governments leave the issue of rBGH solely to the expert review bodies. Indeed, both European and U.S. lawmakers debated the socio-economic implications of rBGH and passed moratoria on its use for varying lengths of time.

The multinational agrichemical company Monsanto first requested market approval for rBGH in the United States in 1986. In the words of Neal Jorgenson, then-Dean of the College of Agricultural and Life Sciences at the University of Wisconsin, the development of this new technology to increase milk production "could not have come at a worse time" (U.S. House of Representatives 1986:148). When rBGH was introduced, the federal government had begun buying out entire herds of dairy cows for slaughter, in an attempt to reduce the milk surplus. The approval of a technology that would increase milk production per cow appeared to seriously conflict with this objective and threaten the already unstable dairy industry (Mills 2002:34–36). However, the budgetary crises of the early 1980s, combined with a growing discourse of neoliberalism, set in motion a steady shift away from the state assistance paradigm, culminating in the 1996 Farm Bill that radically broke from the policies of the past (Ray et al. 2003; Skogstad 1998). Such changes were underway as early as 1981, when a Farm Bill was negotiated to change the government's price support for dairy farmers, reflecting President Reagan's push for decreased state spending on agricultural subsides. The new price support system, and those of the 1985 and 1990 Farm Bills, while only partially reflecting neoliberal ideas, required U.S. farmers to depend increasingly on market prices for their incomes.

In the EU, the debate about rBGH began in 1987, when Monsanto and Elanco (a division of Eli Lilly) requested marketing authorization for their rBGH products. As in the United States, European dairy farmers also faced problems of dairy overproduction. However, the political economic landscape was somewhat different in Europe than in the United States. Although Europe faced a budget crisis similar to that of the United States, among European policymakers there remained "a continuing belief that agriculture serves important national and supranational goals" and as such required continued state assistance (Skogstad 1998: 475). In 1984, production controls on milk were introduced. Unlike neoliberal agricultural reforms in the United States taking place at the same time, the dairy quota system provided leverage to those who opposed the introduction of rBGH.

The EU's ongoing protection of the agricultural market was a key sticking point in the negotiation of the Uruguay Round of GATT talks during the late 1980s and early 1990s. Within Europe, the agri-food industry advocated neoliberal policy reforms and supported the market liberalization aims of the Uruguay Round (Potter and Tilzey 2005: 590). Thus, in 1992, the EU initiated significant reforms to the Common Agricultural Policy (CAP) that mirrored the neoliberal reforms taking place in the United States. Still, as a number of analysts have observed, the EU did not completely break from the paradigm of state assistance for agriculture but rather continued to uphold the model of agricultural exceptionalism (Grant 2003; Potter and Tilzey 2005; Skogstad 1998). This ongoing commitment to state assistance to agriculture contributed to a very different outcome with respect to rBGH than occurred in the United States. While rBGH was approved for widespread use in 1993 in the United States, commercialization has never been permitted in the European Union.

The comparison between the United States and EU could stop here, with the conclusion that the different outcomes with respect to the approval of rBGH are due to the different levels of commitment to agricultural exceptionalism by the two governments. However, the story becomes more complicated if we look at the justification for the permanent moratorium on rBGH in Europe. Ultimately, it was not established on grounds of supporting the agricultural economy, but rather to protect animal welfare, as supported by scientific studies. The comparison is also more complex than it appears if we consider the early debates about rBGH in the United States. Neoliberal ideas about deregulation and state non-interference in the market are largely unspoken in both cases, though they certainly provide the backdrop. Instead, the primary arguments in favor of rBGH center on ideas of

technological progress and scientific rigor. Thus, in the United States and the EU, advocates of rBGH merged neoliberal discourses with a discourse of scientism. That is, the argument in favor of marketing rBGH was generally that the only legitimate justification for keeping rBGH off the market would be scientific proof that it causes harm. The following sections consider each of these debates in turn.

U.S. Debates about rBGH

As described above, when rBGH was first developed, both U.S. and European farm policies were undergoing revision and the notion of agricultural exceptionalism was under pressure. Critics of rBGH attempted to halt the introduction of the drug by pointing out the ways in which its socio-economic effects would contradict the goals of existing agricultural policies. This effort was much more successful in the EU than in the United States, where commitment to state assistance for agriculture was waning.

At first, those concerned about rBGH in the United States pointed to the need to uphold social welfare protections for small farmers. Many of the most vocal opponents of rBGH, particularly in the debates in the mid-1980s, based their opposition to the drug on socio-economic considerations. In 1984, Robert Kalter, an economist at Cornell University, published a study in which he concluded that thirty percent of dairy farmers would go out of business within five years of the approval of rBGH (discussed in Collier 2000:157). Other studies published in the late 1980s and early 1990s suggested that rBGH would reinforce or accelerate the structural transformation of the U.S. dairy industry away from small-scale producers (Office of Technology Assessment 1991). Criticism of rBGH based on these and other socio-economic concerns had important influence in government regulatory bodies—turning rBGH into a dairy policy issue (Browne and Hamm 1988; Mills 2002). Moreover, concerns about the survival of the family farm, combined with worries that an increase in milk supplies would overburden the federal dairy support program, were effective in mobilizing a grassroots movement against rBGH (Browne and Hamm 1988).

Arguments in favor of socio-economic regulation did seem to have some legitimacy in early debates about rBGH. Some policymakers took seriously the arguments about the effects of rBGH on family farms and the dairy economy. For example, in June 1986, the issue of rBGH was debated in Congress. The Subcommittee on Livestock, Dairy, and Poultry of the Committee on Agriculture of the U.S. House of

Representatives held a day-long hearing that was published under the title, "Review of Status and Potential Impact of Bovine Growth Hormone." Participants in the hearing presented a variety of perspectives on the potential impacts of rBGH on dairy farming in the United States. Proponents of rBGH included the biotechnology companies manufacturing the drug, the United States Department of Agriculture (USDA), and some representatives of the dairy industry. Opponents included prominent biotechnology critic Jeremy Rifkin, the Humane Society of America, a number of members of Congress, and other representatives of the dairy industry. The debate in that hearing, simply put, could be characterized as the interests of the biotechnology industry versus those concerned with the stability of the dairy industry and the survival of the family farm.[3] At this point in the history of the rBGH debate, socio-economic concerns were central, while human and animal health issues were peripheral.

Concerns about the impacts on dairy farmers were represented in Congress by Representatives Tony Coelho and Steven Gunderson, both from large dairying areas (California and Wisconsin, respectively). According to a report in the *Washington Post*, they made "no secret of their intentions to force the Food and Drug Administration (FDA), the Agriculture Department and the drug companies to jump through every conceivable regulatory hoop before the growth hormone is marketed" (Sinclair 1986b). Reflecting concerns about the societal impacts of rBGH, the purpose of the 1986 Congressional hearing was not to examine the safety or efficacy of the product, but to look specifically at the socio-economic effects of its commercialization.

Nevertheless, neoliberal policies with respect to the regulation of biotechnology favored the approval of the rBGH. The Reagan administration decided that biotechnology products should be regulated no differently than their traditional counterparts, rather than creating a separate body of law to address the regulation of ag-biotech (Mills 2002: 55). The purpose of utilizing this regulatory system was made clear some years later in the "Principles for the Regulatory

[3] Tony Coelho, a Congressman from California and Chairman of the Subcommittee on Livestock, Dairy and Poultry, presided over the hearing. Other participants were Congressmen James M. Jeffords from Vermont, James R. Olin from Virginia, and Steve Gunderson from Wisconsin. Their opening remarks were followed by the testimony and questioning of Ewen M. Wilson, Deputy Assistant Secretary of Economics of the USDA and Frank E. Young, MD, Commissioner of Food and Drugs at the FDA. The remainder of the hearing consisted of four panels: first, representatives from the biotechnology industry; second, scholars in the field of agriculture and agricultural economics; third, farmers and representatives of the dairy industry; and finally, representatives of other organizations concerned with the introduction of rBGH, including Jeremy Rifkin.

Review of Biotechnology," approved by President George H.W. Bush in 1990. The document states that, among other things, regulations must minimize the regulatory burden and accommodate rapid advances in biotechnology (Mills 2002:56). The goal of decreasing the regulation of biotechnology was restated in 1991 by the President's Council on Competitiveness, which encouraged voluntary private standards in place of "unneeded regulatory burden" (Mills 2002:56-57). Although the legislative branch at a national level took interest in rBGH, responsibility for actual regulation ultimately rested with the FDA.

A coalition of organizations, including Jeremy Rifkin's Foundation on Economic Trends and the Family Farm Defenders, petitioned the FDA, asking the agency to study, among other things, the socio-economic impacts of the new drug (Sinclair 1986b). Explaining why they were submitting the petition, Mike Cannell, a farmer representing the Wisconsin Family Farm Defense Fund was quoted in the *Washington Post* as stating: "It is legitimate to question whether technological advancements are social progress. ...Bovine Growth Hormone is not in the good culturally and socially for the industry on which it will have its impact... There is one key question: What do we want rural America to look like and what kind of society do we want functioning in rural America?" (Sinclair 1986a). However, this petition was rejected because the FDA does not have the mandate to evaluate that kind of impact. The FDA has no tradition of socio-economic regulation. Indeed, efficacy and safety, defined within a paradigm of scientism, are the watchwords at the FDA, and these were the criteria used to determine the appropriateness of commercializing the genetically engineered hormone (Jasanoff 1990; Mills 2002). Thus, although contradictions with existing federal policies to control the supply of milk were evident and widely acknowledged in the legislature, they ultimately did not stand in the way of the approval of rBGH. After several years of intense scientific and public debate, in November 1993, the FDA announced approval of the drug, based on a conventional scientific evaluation.

EU Debates about rBGH

In the EU, efforts to use existing agricultural policy as a reason to prohibit the use of rBGH were more successful than in the United States. In April 1990, while still waiting for the CVMP's evaluation of Monsanto's and Elanco's rBGH products, the EU passed a temporary ban on the drug. The moratorium was extended for a number of years, although the justifications for the moratorium varied. In January 1993, the CVMP issued a positive opinion in favor of rBGH, finding no

human or animal health risks. Nevertheless, the European Commission proposed to continue the moratorium. This, of course, contrasts with the U.S. case, in which the Food and Drug Administration was the ultimate authority on the approval of drug, and there were no successful efforts to create a long-term moratorium after the FDA's "science-based" decision.

During the debates about rBGH, some European policymakers attempted to expand the definition of scientific risk assessment to include socio-economic impacts. They aimed to institutionalize a "fourth hurdle" or "fourth criterion": the idea that approval for market introduction of a new technology should be based in part on its likely socio-economic impacts and the consistency of these impacts with existing policy determinations and the values underlying those policies.[4] It was called the "fourth" hurdle because it was to be added to the accepted three criteria for approving new veterinary drugs: quality, safety, and efficacy. The assumption underlying this new criterion of assessment was that it is reasonable to prohibit the development of biotechnology if policymakers determine that the social costs of its introduction are unacceptable. In other words, advocates of the fourth hurdle argued that the market and scientific risk assessment should not be the only arbiters of what new technologies are introduced and successful. A central consideration in the EU policy discussion over the fourth hurdle was what new technologies and drugs would mean for the social structure of agriculture in EU countries.

Proposals for an official fourth hurdle circulated in the European Parliament and the Commission from the late 1980s to the mid-1990s. Industry groups strongly opposed the fourth hurdle idea, arguing that it would introduce uncertainty into the regulatory process and discourage research and innovation. This perspective was summarized in a 1989 report by the European Commission on the issues surrounding rBGH. At that time, the pharmaceutical industry was "concerned about [the] possible adverse impact of changes in authorization procedures not founded on a sound scientific basis. The industry would be opposed to criteria relating to social and economic factors. The contention is that departures from criteria established by legislation create uncertainty, and reduce the likelihood of research, development, innovation and investment" (Commission of the European Communities 1989:14).

[4] For detailed discussions of the fourth hurdle, see Kleinman and Kinchy (2003a, b).

In early 1991, the fourth hurdle appeared to be a political possibility. The European Commission published a statement on biotechnology in which it stated that it reserved the right to go beyond scientific evidence and consider other factors when making a decision about ag-biotech (Commission of the European Communities 1991). Industry groups were dismayed and made clear their preference for the existing "scientific" criteria for evaluation of veterinary drugs. A representative of the veterinary drug industry lobby group, Noah, was quoted as saying that the industry would work to stop any kind of fourth hurdle regulation, and "if we fail at that level, we will fight line by line to change its wording." He added, "A lot of people in lots of industries will see this as the thin edge of the wedge" (Erlichman 1991). At a meeting of the UK BioIndustry Association (BIA) in 1991, fourth hurdle-type regulations were noted as an official concern of the industry. Dr June Grindley, a spokesperson for the BIA, stated that "product approval should be on the basis of the assessments of safety and effectiveness rather than upon judgments of its benefits to society. Only a regulatory system based on sound scientific principles will allow European industry to maintain its competitive position" ("Conference Report" 1991). FEDESA, a group representing the interests of the veterinary drugs industry across Europe, also argued strongly against the introduction of a fourth hurdle. The group's secretary-general, Dr. Johan Vanhemelrijck, explained that "safety, quality and efficacy criteria will continue to serve the interests of consumers, farmers and our industry in the best possible way. A rigorous, objective and non-political regulatory and control system is the best guarantee of the integrity of the food chain" ("FEDESA" 1991). The industry position was reflected in the EU's decisions regarding the fourth hurdle. Although the idea was widely discussed, none of the proposals for introducing a socio-economic criterion ever became official policy.

Nevertheless, socio-economic concerns remained at the root of Europe's reluctance to accept rBGH for a number of years, again to the consternation of the pharmaceutical and biotechnology industries. In 1993, Rene Steichen, the EU's Agriculture Commissioner, made it clear that he wanted to ban the drug on the grounds that it would have socio-economic impacts inconsistent with existing EU policies ("Dairy Farming" 1993). The European Commission focused on the negative impacts on small dairy farmers that may result from introducing rBGH into the European market. It pointed out that the commercialization of rBGH would run counter to the Common Agricultural Policy (CAP) (Commission of the European Communities 1993a). Following this logic, the Commission submitted a proposal for a Council decision in

favor of a ban on rBGH until the end of the existing milk quota regime (Commission of the European Communities 1993b). The Commission's position was that as long as quotas were necessary to limit milk production, the introduction of rBGH would conflict with the objectives of the CAP. In December 1993, a debate in the European Parliament on the status of rBGH revealed a heightened awareness that such a moratorium would certainly bring the EU into a trade conflict with the United States, which had just approved that drug that year (European Parliament 1993). Despite these concerns, the EU continued to pass moratoria on rBGH throughout the 1990s. Thus, the socio-economic priorities established by existing agricultural policy were, for many years, an effective justification for prohibiting the use of rBGH in Europe.

In 1996, Monsanto and Elanco took legal action against the European Commission's continual refusal to deregulate rBGH. The companies initiated court action formally requesting that the European Commission include their rBGH products on the list of substances not subject to maximum residue limits. The European Commission denied that request, citing the moratorium as the reason. In 1998, the European Court of Justice ruled that the Commission was wrong to base its decision on the moratorium, since it was clearly imposed for socio-economic reasons and not because of health or safety concerns. The ruling did not overturn the ban, but it drew attention to the EU's use of an unofficial fourth criterion in its decisions on rBGH. At the same time, industry analysts took note of the possibility that the EU could be taken to task at the WTO because of its stance on rBGH. The British grocery industry magazine, *The Grocer*, noted that the court ruling "could now make the community more vulnerable to attack on the [rBGH] ban from the World Trade Organisation if exporting countries chose to challenge the EU ban, since only restrictions based on strictly scientific grounds can be justified under WTO rules" ("Court Undermines" 1998).

Following the Court of Justice ruling, the European Commission began to seek a "scientific" justification for the moratorium, turning its attention to public health issues related to rBGH. Since about 1994, an anti-BGH movement across Europe had begun to draw attention to the effects of rBGH on the health and well-being of dairy cows (Levidow and Carr 1997). After the court ruling, European policymakers justified a ban on rBGH on the basis of these animal welfare concerns rather than on its contradictions with the CAP. Several years prior, the Council had called for a "Working Party of independent scientists, in collaboration with the Member States..." to assess the effects of using

rBGH (Council of the European Union 1994). The Commission pointed to studies conducted by that group that found that the use of rBGH results in "painful and debilitating" conditions for cows regularly injected with the substance, "leading to significantly poorer welfare of the animals" (Health and Consumer Protection Directorate-General 1999; SCAHAW 1999). With that evidence, the Commission called for a final, permanent ban on rBGH (Commission of the European Communities 1999). With support from the Economic and Social Committee and the European Parliament, EU ministers voted for a permanent moratorium on rBGH in December of 1999 (Council of the European Union 1999; Economic and Social Committee 1999). The ban on the marketing and use of rBGH in the EU, based on concerns for animal welfare, went into effect on January 1st of 2000 and has remained intact until the present day.

Although rBGH met a very different fate in the EU than it did in the United States, both cases provide evidence of neoliberalization of agricultural policy. In neither case were the governments able to permanently ban rBGH on the basis of its socio-economic effects, despite the fact that commercialization of the substance clearly contradicted existing dairy policy. In both contexts, advocates of the drug emphasized its scientifically established safety and the illegitimacy of any other standards of evaluation, a view which was reflected in official government policy. The main difference between the two cases is that EU policymakers were able to keep temporary moratoria intact longer and ultimately were more willing to take seriously "scientific" concerns about animal welfare. Socio-economic regulation of ag-biotech was superseded, in both cases, by policies that are both neoliberal and scientistic.

Negotiations for the Protocol on Biosafety

Policy debates about ag-biotech remain contentious over twenty years after the first discussions of rBGH. The dominant discourses in this now-global debate have not changed significantly. We continue to find close links between neoliberal policy ideas and scientism; the two discourses work together to promote a policy of minimal regulation of biotechnology. However, activists and scholars throughout the global South continue to take issue with this political project, sustaining a critique of the socio-economic implications of ag-biotech in addition to the environmental and health issues that now dominate the debate in the global North. Advocacy networks such as Third World Network and Via Campesina, in particular, have kept the idea of socio-economic

regulation of ag-biotech in global circulation, often utilizing a concept of "food sovereignty" that encompasses a wide range of issues associated with transformations in agri-food systems.

Recently, some states have sought to use the United Nations treaty-making process to affirm the legitimacy of using socio-economic concerns as a justification for restricting trade in ag-biotech (Kleinman and Kinchy 2007; Stabinsky 2000). During the negotiations for a Protocol on Biosafety to implement aspects of the Convention on Biodiversity, a coalition of Third World countries persistently argued that socio-economic, spiritual and ethical issues should be included in risk assessments of new biotechnologies in addition to conventional science-based risk assessment. Although the Biosafety Protocol was intended to address the protection of biodiversity, the negotiations for the Protocol became a forum for raising a wide range of issues associated with ag-biotech. One key debate was whether states should allow imports of ag-biotech products from other countries, despite negative effects on local agricultural production. The coalition of states advocating greater restrictions on trade in ag-biotech was dubbed the Like-Minded Group. They feared that biotechnology could disrupt trading patterns and that genetically modified organisms used in Southern agriculture could lead to a "shift from smallholdings to large farms that can more easily adopt, or adapt to, emerging technologies" (Zedan 2002:26, 27).

This position on ag-biotech was opposed by a U.S.-led coalition of six GMO-producing countries, collectively referred to as the Miami Group (Enright 2002, Koster 2002). They argued that the final agreement must not undermine, restrict, or disrupt international trade ("Biosafety Protocol Negotiations Endangered by Diverging Positions" 1999). As such, the Miami Group advocated the use of science-based risk assessment for ag-biotech and strongly opposed any socio-economic evaluation criteria.

Beginning in 1995, delegates first met to negotiate the terms of the Protocol and gathered on seventeen additional occasions over five years (Falkner 2002). The earliest draft documents formed the basis for subsequent discussions and included detailed provisions that took into consideration socio-economic factors in assessing the impact of biotechnologies. During the first meeting of the Biosafety Working Group in 1996, many country representatives stated their positions on whether socio-economic concerns should be discussed as part of the Biosafety Protocol. Countries in favor of placing socio-economic regulation in the protocol included Malaysia, Costa Rica, Sri Lanka, India, Ghana, Indonesia, Mauritius, Nigeria, and Vietnam. Their views

were supported by non-governmental organizations (NGOs) such as the Third World Network and Greenpeace. The European Union, on the other hand, emphasized that risk assessment "should be based on sound scientific data" (ENB 1996). The United States could not make statements because it has never signed the Convention on Biological Diversity, but Australia and Canada–other countries that would become members of the Miami Group–weighed in with the view that it was not an appropriate forum in which to discuss socio-economic issues.

During the second meeting of the Biosafety Working Group (BSWG) in May 1997, the most comprehensive provisions for regulation on the basis of socio-economic considerations were introduced into the discussion. Observers noted that many developing countries and NGOs united to express strong reservations about the social and economic ramifications of biotechnology, including "loss of employment and export markets, uncontrolled growth in the power of multinational corporations and a dangerous expansion of the concept of patentability [of living organisms]" (ENB 1997:12).

The first actual text for a Protocol was not developed until the third meeting of the BSWG in Montreal in October of 1997. Despite progress, the session concluded with most of the contentious issues, including socio-economic considerations, unresolved. A group of representatives from African countries, called the African Group, carefully delineated the dimensions they believed should be considered in socio-economic assessment. Among these were:

> a) Anticipated changes in the existing social and economic patterns resulting from the introduction of genetically modified organisms or GM products;
> b) Possible social and economic costs of a loss of genetic diversity, employment, and market opportunities resulting from the introduction of GMOs;
> c) Possible effects seen as contrary to the social, cultural, ethical and religious values of communities resulting from the use or release of GMOs (UNEP Biosafety Working Group 1997: 95).

Negotiations for the Protocol dragged out over numerous meetings over subsequent years. The parties were unable to resolve disagreement over socio-economic considerations, among other contentious issues. Finally, at a meeting held in February 1999, the chair of the negotiations decided to eliminate all the detailed and complex proposals on socio-economic impacts that remained under debate. All references to socio-economic considerations were deleted except a single brief article that dealt specifically with those issues. This was a

blow to the Like-Minded Group since the specific socio-economic concerns raised by the African Group and other delegations such as Malaysia and Bolivia were absent in the new condensed text. Most of these delegates were unsatisfied with the protocol article, which permitted the parties to "take into account, consistent with their international obligations, socio-economic considerations arising from the impact of living modified organisms on the consideration and sustainable use of biological diversity" (UNEP Biosafety Working Group 1999:32). The reference to consistency with international obligations was problematic for the Like-Minded Group, whose proposals for incorporating socio-economic considerations were partially designed to counteract policies put in place by existing neoliberal international trade agreements.

Despite this and other dramatic steps taken to achieve consensus, the February 1999 talks broke down when the Miami Group refused to accept a compromise package that they viewed as a threat to "free trade" (Thomson 1999). Anti-biotech advocacy groups blamed the Miami Group for using the negotiation process to try to force a free trade agenda on developing countries. For instance, Chee Yoke Lang, an attorney for Third World Network, said "the Miami Group never wanted a Biosafety Protocol, but rather a free trade treaty" (Sanchez 1999).

Complementing the Miami Group's position, the global pharmaceutical and biotechnology industries criticized the negotiations for the Biosafety Protocol by pointing out the ways in which they undermined the "sound science" basis for risk assessment. The Associated Press reported that industry groups from Argentina, Mexico, the United States and Canada didn't "want their products halted at borders for...unsound scientific reasons" (Maldonado 1999). A press release summarizing the Global Industry Coalition's response to the Biosafety negotiations insisted that "risk assessment must be based on internationally agreed scientific principles" (PR Newswire 1999). A pharmaceutical industry newsletter reported that the U.S. Council for International Business (USCIB) was concerned that "the Protocol could...undermine the sound science basis for risk assessment, including undercutting the WTO's current basis of sound scientific assessment in favor of the precautionary principle as its foundation, resulting in trade restrictions justified even in the absence of scientific evidence" ("US Industry Warning" 1999).

Despite these calls for "sound scientific" principles, when the negotiations reconvened in Cartagena, Colombia in February 2000, the President of Colombia made an opening statement that suggested he

supported a broader approach. As reported in the official UN meeting minutes, President Andrés Pastrana said "science must be subordinated to ethics and to the satisfaction of basic human needs." Furthermore, he "urged participants to seek agreement in order to be able to tackle in a responsible manner issues involved in the protection of biodiversity such as world food security, human health and survival and an equitable social and economic future for both the industrialized world and the developing countries" (UNEP Biosafety Working Group 2000). Nevertheless, by this time, all of the most detailed proposals for systematic socio-economic evaluation of ag-biotech had already been gutted from the draft Protocol.

Though many critics of ag-biotech hailed the Protocol as a victory when consensus was eventually reached, in the area of socio-economic regulation it is weak. It does very little to challenge the idea that science provides the only legitimate justification for restricting trade in ag-biotech. Nevertheless, throughout the process, negotiators were free to openly oppose the discourses of neoliberalism and scientism and to present policy ideas grounded in the desire to protect national social and economic interests. This meant that some of these ideas did become part of the final agreement, which may be a resource to future struggles to resist the discursive dominance of neoliberalism and scientism in the area of ag-biotech regulation.

Conclusions

Throughout this analysis, we have demonstrated how a concept of discourse can be used fruitfully in a study of agrarian political economy. Globalization and neoliberalization are projects pursued by elites rather than inexorable trends driven by some "hidden hand" of economic forces. Therefore, we need a different type of analysis than those based on the assumptions of the globalization thesis. Although there may be other productive ways forward, we have found that discursive institutionalism provides a good deal of analytical leverage. The approach we adopted in this study enables us to take seriously the idea that the relationship between the state and the market is constructed in struggle in specific times and places. Furthermore, our approach allows us to avoid perpetuating the disabling distinction between political economy and cultural studies that is found so often in the sociology of agri-food systems.

This research shows that the *dual* discourses of neoliberalism and scientism rationalize a position of minimal regulation of ag-biotech and make this non-interference seem inevitable. By recognizing that

neoliberalism is a policy discourse made even more powerful by its conflation with scientism, a discourse of long standing throughout the Western world (and, increasingly, globally), we were able to understand the marginalization of socio-economic regulation in the three policy settings we considered. State intervention in ag-biotech markets has been precluded by a commitment not only to the neoliberal idea of minimal regulation of markets, but also by a complementary dedication to a very narrowly defined concept of "science-based" risk assessment. This produces trends toward policies that favor the ag-biotech industry over the cultural and economic interests of small farmers.

The Biosafety Protocol, however, breaks with this trend by explicitly (albeit minimally) institutionalizing socio-economic regulation of ag-biotech. The effects of this policy are still unknown—many predict that the outcomes will be negligible—but the fact that socio-economic issues have made it into international policy illustrates the "resistibility" of neoliberalization. The case of the Biosafety Protocol also indicates the possibility of de-linking scientism from neoliberalism. Advocates of socio-economic regulation often used scientism to support increased state intervention into markets to protect the economic well-being of a nation's farmers. For example, proposals by the African Group indicated that scientific risk assessment can and should include socio-economic effects. The Like-Minded Group also explicitly argued that the Biosafety Protocol was not intended to be a "free trade" treaty, thus indicating that neoliberalism was not to be the background assumption for the negotiations. It became possible, then, to discuss the scientific regulation of ag-biotech without the obligation of keeping regulations to a minimum or favoring the interests of the biotechnology industry. This de-linking of scientism from neoliberalism has the result of revealing the "free market" to be a political project like any other, rather than a natural, neutral, or inevitable entity.

Broad trends toward neoliberalization are clearly evident around the world, not only in the area of ag-biotech. However, this does not mean that neoliberalization is the unavoidable result of an inexorable process of globalization. Neoliberal policy ideas are contested both within states and between states and other actors, such as industry and activist groups. Such policies are actively adopted (or resisted) by state actors, and resistance has varying degrees of success depending on institutional context. Indeed, as the cases examined here clearly illustrate, states have an active role in determining how and whether neoliberal policies will be established. Throughout the 1990s, the European Union government largely avoided adopting a neoliberal approach to the regulation of ag-biotech, asserting its commitment to a tradition of

agricultural exceptionalism. Some lawmakers in the United States attempted to do the same, but were ultimately undermined by a pre-existing commitment to "science-based" decision making as institutionalized in the FDA. At the international level of governance, delegates to the UN negotiations for a Biosafety Protocol openly discussed and considered the possibility of instituting policy that directly contradicted both neoliberal principles of "free trade" and "deregulation" as well as the discourse of "sound science" pushed vehemently by the ag-biotech industry.

If we recognize that states actively make decisions about neoliberalization, it becomes evident that civil society also has a role insofar as it affects state decisions and shifts the discursive terrain. Although our focus here was on state actions, in all three cases examined, social movements contributed in important ways to the political struggle over the regulation of ag-biotech. Without Jeremy Rifkin, the Family Farm Defenders, and other U.S. activists, it seems unlikely that U.S. policymakers would have so vehemently argued for a ban on rBGH based on socio-economic considerations. In Europe, without an anti-BGH movement bringing attention to animal welfare concerns, regulators might not have found grounds for the permanent ban on the drug. And in the case of the Biosafety Protocol, it is abundantly clear that scholars and activists from groups like the Third World Network and Greenpeace made it possible for countries with few resources and little representation to keep their cultural and economic concerns about ag-biotech on the table over the years of negotiation. The discourse of the U.S. and European anti-biotech movement has shifted away from the socio-economic concerns that characterized the early opposition struggle. However, if the negotiations for the Biosafety Protocol are any indication, in other parts of the world, such counter-hegemonic ideas are at the center of political discourse regarding ag-biotech. These oppositional positions have relied upon discourses of longstanding, such as social welfare protection and agricultural exceptionalism. They have also produced new counter-hegemonic discourses, such as food sovereignty.

This is not to say that resisting the dominant policy ideas is easy. Neoliberalism is not only the global "common sense" but is also quite consciously institutionalized in the rules of powerful transnational organizations that are able to use coercion in order to produce both neoliberalization and scientization of policy. Furthermore, industry groups that stand to gain from neoliberalization are often able to dominate the terrain of discourse, particularly in introducing the concept of "sound science" as an argument to shut down any attempts

to bring socio-economic issues into public debate. Trends toward neoliberalization and scientization are evident even where the outcomes, in terms of government regulation of ag-biotech, are quite different, as indicated in the cases examined here. Despite widely noted differences in U.S. and European Union positions on ag-biotech, both governments ultimately adopted neoliberal and scientistic positions with respect to ag-biotech. Both agree that it is undesirable for states to intervene in markets except to protect human health and, in some cases, the environment.

We should expect an ongoing effort on the part of advocates of ag-biotech to institutionalize not only a "free trade" orientation toward novel agricultural products but also a "sound-scientific" approval process. However, this should not be construed as evidence of the inevitability of global neoliberalization. Recognizing that resistance is difficult is not the same thing as saying that globalization and a condition of neoliberalism are simply givens, beyond the reach of any state or social movement.

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