

Book Review

Seeds, Science, and Struggle: The Global Politics of Transgenic Crops by Abby Kinchy
MIT Press, Cambridge, MA, 2012, 240 pages, US\$22.00
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Contemporary debates over the uncertainty of the future, unknown risks associated with biotechnology tend to center around the politicization of the regulatory system and the challenges of addressing different types of evidence in risk assessment. *Seeds, Science, and Struggle* critiques the institutionalization of science-based risk assessment within regulatory structures governing biotechnology, what Kinchy labels the ‘scientization of governance’. This book argues that the scientization of governance has limited the debate over biotechnology to matters of risk and safety while silencing the ethical, environmental and social considerations pertaining to the proliferation of genetically modified (GM) crops, especially when GM crops are discovered in unintended locations or ‘out of place’. Current anxieties about health and the environment are intertwined with issues surrounding power and inequality in the agri-food system and cannot be reduced to scientifically determined probabilities of risk.

Viewing the role of science in debates surrounding transgenics in the food system from a social movement perspective, Kinchy’s work explores an interesting element of the ag-biotechnology debate by drawing on the experiences of a variety of stakeholders including farmers, rural communities and anti-biotechnology activists who challenge the legitimacy of the proliferation of GM crops across North America. She uses a wide array of sources, including interviews with farmers, scientists and activists, participant observations, archives and policy documents, to explore how different groups view ‘genes out of place’. The central discussions are focused on the strategies used by activist communities and farmers who oppose the spread of GM crops, and the socio-political concerns over the containment and segregation of GM crops from non-GM varieties. Building on Keck and Sikkink’s notion of the ‘boomerang effect’ the concept of an ‘epistemic boomerang’ is developed to explain the various ways opponents of biotechnology in the food system mount challenges to the status quo by linking local social movement struggles to global epistemic communities. The characterization by some observers that anti-biotechnology activists are ‘anti-science’ is challenged, as those opposed to the proliferation of biotechnology use scientific evidence to identify genes out of place. Two high profile case studies

are explored to demonstrate the ‘scientization of governance’: GM maize in Mexico and GM canola in Canada.

Using Beck’s classic concept of the ‘Risk Society’ to frame the discussion, Chapter 1 explores how risk assessment and scientific calculations of probability of harm determined by scientific experts now define regulatory discussions on managing innovative technologies, in contrast to previous eras where scientific experts informed policy decisions. Four main strategies used by farmers and activists in reaction to the scientization of biotechnology policy are discussed: externalizing struggles to international experts, civil society research, scrutinizing science in court and using market-based tactics. Chapter 2 fleshes out the concept of ‘scientization’ and places its dominance in the context of the rise of economic neo-liberalism and the entrenchment of the rights of capital, most notably, intellectual property rights. This sets the pace for the rest of the book, which delves deeper into empirical examples of how scientific assessments of risk shape the discussions and debates over GM crops.

The rest of the book provides a very detailed account of the experiences with GM crops in Mexico and Canada. The thorough and informative discussion of the changes that agricultural sectors have experienced over the last 30 years provides an important context to the case studies of GM maize and GM canola. Tracing the growth and development of social protest over the use of transgenic crops in Mexico provides important details regarding which actors were involved, how issues were defined and how science was used by anti-biotechnology activists to demonstrate the ‘GM pollution’ of Mexico’s maize. Two chapters focus on the Canadian experience with GM canola by looking at the Monsanto v. Schmeiser case and provide a thorough background on the issues and how the legal case in the Supreme Court of Canada played out. In this case, the legal discussion of genes out of place became focused on the court’s interpretation of science and the scientization of seed saving. Chapter 6 explores how a segment of the organic industry in Saskatchewan, Canada launched a lawsuit framing genes out of place as a marketability issue and a threat to overseas markets for Canadian certified organic crops. The chapters focus on the relationship between actors,

interests and science, and their interactions with the legal system. The book concludes by making the argument that regulatory systems are not equipped to deal with genes that are out of place. Thus mounting a formal opposition to the unintended spread of GM crops is difficult to address within the legal system.

Overall, Kinchy's book is well-written and well-researched, drawing on a significant variety of sources. The discussion might have benefited from placing the analysis of activism and social movements within the (anti) globalization and governance literature. Though this book's framework stems from Beck's concept of the Risk Society, the related concept of 'reflexive modernity', which captures forms of social resistance to the wider proliferation of manufactured risks throughout society, is not addressed. Since the book is focused on giving a voice to farmers, and rural communities I would have liked to see some discussion of the perspectives of farmers in Canada and Mexico who use GM crops and their concerns and needs.

Despite these concerns, *Seeds, Science, and Struggle* provides an excellent examination of the role of science

in decision-making for biotechnology in the food system and the current tensions which exist between civil society, the market and the state. It provides ample information for any scholar wishing to gain a comprehensive understanding of the concerns over the proliferation of biotechnology beyond scientific probabilities of risk. Readers will gain a better understanding of the role that science and social activism play in debates over evidence, risk and biotechnology. It is successful in placing the struggles over biotechnology in the broader discussion of how social movements mount challenges to technological innovations and question the role science plays in the decision-making of political institutions.

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