

Kregg Hetherington

THE GOVERNMENT OF BEANS

REGULATING LIFE IN THE AGE OF MONOCROPS



THE GOVERNMENT OF BEANS

BUY

DUKE

**UNIVERSITY
PRESS**

KREGG HETHERINGTON

THE GOVERNMENT OF BEANS

Regulating Life in the Age of Monocrops

DUKE

UNIVERSITY
PRESS

DUKE UNIVERSITY PRESS • DURHAM AND LONDON • 2020

© 2020 DUKE UNIVERSITY PRESS

All rights reserved

Printed in the United States of America on acid-free paper ∞

Designed by Matthew Tauch

Typeset in Arno Pro by Westchester Publishing Services

Library of Congress Cataloging-in-Publication Data

Names: Hetherington, Gregg, author.

Title: The government of beans : regulating life in the age of monocrops / Gregg Hetherington.

Description: Durham : Duke University Press, 2020. |

Includes bibliographical references and index.

Identifiers: LCCN 2019041805 (print) | LCCN 2019041806

(ebook) | ISBN 9781478006060 (hardcover) |

ISBN 9781478006893 (paperback) | ISBN 9781478007487

(ebook)

Subjects: LCSH: Soybean industry—Paraguay. | Soyfoods industry—Paraguay. | Sustainable agriculture—Political aspects—Paraguay.

Classification: LCC HD9235.S62 P345 2020 (print) |

LCC HD9235.S62 (ebook) | DDC 338.1/733409892—dc23

LC record available at <https://lcn.loc.gov/2019041805>

LC ebook record available at <https://lcn.loc.gov/2019041806>

Cover art: Police guarding soybean field, Paraguay, 2013.

Photo by Edgar Vázquez.

DUKE
UNIVERSITY
PRESS

CONTENTS

Acknowledgments vii

INTRODUCTION · Governing the Anthropocene 1

PART I | A CAST OF CHARACTERS 19

CHAPTER ONE · The Accidental Monocrop 23

CHAPTER TWO · Killer Soy 32

CHAPTER THREE · The Absent State 43

CHAPTER FOUR · The Living Barrier 53

CHAPTER FIVE · The Plant Health Service 62

CHAPTER SIX · The Vast Tofu Conspiracy 70

PART II | AN EXPERIMENT IN GOVERNMENT 81

CHAPTER SEVEN · Capturing the Civil Service 85

CHAPTER EIGHT · Citizen Participation 96

CHAPTER NINE · Regulation by Denunciation 106

CHAPTER TEN · Citation, Sample, and Parallel States 120

CHAPTER ELEVEN · Measurement as Tactical Sovereignty 130

CHAPTER TWELVE · A Massacre Where the Army Used to Be 144

DUKE

UNIVERSITY
PRESS

PART III AGRIBIOPOLITICS	157
CHAPTER THIRTEEN · Plant Health and Human Health	163
CHAPTER FOURTEEN · A Philosophy of Life	174
CHAPTER FIFTEEN · Cotton, Welfare, and Genocide	184
CHAPTER SIXTEEN · Immunizing Welfare	194
CHAPTER SEVENTEEN · Dummy Huts and the Labor of Killing	203
CONCLUSION · Remains of Experiments Past	216
<i>Notes</i>	223
<i>Bibliography</i>	257
<i>Index</i>	277

DUKE

UNIVERSITY
PRESS

ACKNOWLEDGMENTS

This book was ten years in the making, and it has caused me to accumulate more debts than I can fathom. The usual caveats apply: all the mistakes here are mine. And yet I've never before felt just how totally beholden authorship is to the ecosystems (social, intellectual, and more-than-human) in which it thrives. It's an awesome luxury to be able to do something as all-consuming as write a book, probably a luxury that is unsustainable. But here I am; I've written another one, and below are some of the hundreds of people who gave me a boost along the way.

I relied heavily on three researchers who helped me with portions of this project: Marco Castillo, Alejandra Estigarribia, and Sofia Espindola Oviedo. They came and went over the eight years of research, but at many different moments they were deeply involved not only in data collection but in conceptualization of the research problem itself. Long discussions, which you will catch a glimpse of in chapter 6, were integral to the analysis as it went on. What is harder to show is the cumulative effect of those discussions as they took place over several years, and even harder to show the affective collateral of working so closely together. All three of them became very dear friends; if nothing else came of this project, that would have been enough.

DUKE
UNIVERSITY
PRESS

The project would also have been impossible without the generosity and openness shown to me by a surprising number of bureaucrats who worked in the Paraguayan government between 2008 and 2012. We interviewed over 120 people for the book on tape, many of them several times, and many others allowed me to tag along during the workday and look over their shoulders. Most of these appear in the book with pseudonyms, so I can't name them here. But three in particular are obvious, and were also the most generous from the beginning. I originally contacted Miguel Lovera, Inés Franceschelli, and Sylvia González with some trepidation, knowing how much the project might depend on their blessing. Not only were they enthusiastic, but they actively participated in the project for many years, constantly ready to help out and return over old ground, to teach me as I slowly came around to seeing things the way they did, thinking deeply with me as the project matured and the landscape changed. I couldn't have asked for more generous interlocutors in the field, and while all of them have given me their approval on specific parts of the text, I hope that they find themselves fairly represented when they see the whole.

The same is true for a large group of farmers on both sides of a seemingly intractable social and political divide, who invited me into their homes. For the sake of preserving their anonymity, their names also do not appear here, though I still count on the support and generosity of two families in particular: Antonio Galeano and his kids, Derlis, Sonia, Diego, and Mariza, and Jorge Galeano, Demesia Rodríguez, and Leticia Galeano. In Asunción, Noni Florencio, Antonio Castillo, Carolina Castillo, and Thomas Jönsson make it all work. A gaggle of other frequent interlocutors, from whom I continue to learn constantly, are too many to name, but here's a short list: Jazmín Acuña, Carolina Álvarez, Perla Álvarez, Alicia Amarilla, Lucas Bessire, Paola Canova, Joel Correa, Ana Estigarribia, Jorge Estigarribia, Ramona Fischer, Christine Folch, Adriana González Brun, Lawrence Morroni, Andrés Olmedo, Isa Olmedo, Roni Paredes, Adelina Pusineri, Sonia Rodríguez, Luís Rojas, Javiera Rulli, Carly Schuster, Gustavo Setrini, Reto Sonderegger, and Miguel Stoeckel. Tomás Palau, who passed away toward the beginning of this project, is sorely missed.

Several of my colleagues and students did me the invaluable service of reading early, tortured drafts of this manuscript, and giving me feedback, without which the book would have been even more of a soup of half-formed inanities than it is now. They are Andrea Ballestero, Alex Nading, Alix Johnson, Alejandra Melian-Morse, Mark Doerksen, Chantal Gailloux,

DUKE

UNIVERSITY

UNIVERSITY
PRESS

viii ACKNOWLEDGMENTS

Aryana Soliz, Elie Jalbert, Kassandra Lockyer-Spooner, Kristina Lyons, Émile St-Pierre, and Mathieu Guérin. Students in the writing group at the Concordia Ethnography Lab, particularly Marie-Eve Drouin Gagné and Tricia Toso, were excellent companions for the longest months of this project. Others dropped comments along the way, after reading or listening to pieces of the text, which rattled around and eventually affected the words here. The ones that gave me the most (productive) trouble came from Aaron Ansell, Akhil Gupta, Alex Blanchette, Anders Blok, Andrea Muehlebach, Andrew Barry, Andrew Matthews, Anne Spice, Antina von Schnitzler, Ashley Carse, Atsuro Morita, Austin Zeiderman, Bart Simon, Brian Larkin, Brian Noble, Carlota McCallister, Carolina Cambre, Casper Bruun Jansen, Chris Kortright, Cori Hayden, Cymene Howe, David Howes, Diana Bocarajo, Diane Nelson, Dominic Boyer, Donna Haraway, Drew Gilbert, Eduardo Kohn, Elaine Gan, Eleana Kim, Fabiana Li, Gastón Gordillo, Gretchen Bakke, Heath Cabot, Heather Swanson, Ignacio Fariás, Isabel Stengers, Jake Kosek, Jeremy Campbell, Jill Didur, Jim Ferguson, John Hartigan, John Law, Jorge Pantaleón, Julie Soleil Archambault, Jun Borrás, Kaushik Sunder Rajan, Kevin Gould, Kim Fortun, Kristin Asdal, Lesley Green, Lindsay Dubois, Lisa Stevenson, Liz Fitting, Manuel Balán, Mario Blaser, Meghan Morris, Michael Huner, Nais Dave, Natasha Myers, Nikhil Anand, Nora Nagel, Orit Halpern, Pablo Lapegna, Pauline Gardiner-Barber, Penny Harvey, Sarah Besky, Sarah Muir, Tina Hilgers, Tone Druglitrø, and Zachary Caple. Still others are the sort of long-term interlocutors without whom I would find it very hard to think at all, especially Marisol de la Cadena, Anna Tsing, Martin French, Ramón Fogel, and Tania Li.

It's an ongoing pleasure to work with Duke University Press, particularly Gisela Fosado, who continues to support me in all of my projects. Pieces of the chapters ahead have appeared in other places, although always in quite different form, and I especially appreciate the rigorous blind reviews I received there. These other places include *Cultural Anthropology*, *Current Anthropology*, *Indiana Journal of Global Legal Studies*, *Journal of Latin American and Caribbean Anthropology*, *Environment and Planning D: Society and Space*, and chapters in *How Nature Works* (editors Sarah Besky and Alex Blanchette, 2019), and *A Routledge Companion to Actor-Network Theory* (editors Anders Blok, Ignacio Fariás, and Celia Roberts, 2019). The funding for most of this came from the Social Sciences and Humanities Research Council of Canada, the Fonds de Recherche du Québec, Société et Culture, and institutional support from Concordia University, Dalhousie University, and

the Centro de Estudios Rurales Interdisciplinarios in Asunción. Workshops funded by Wenner Gren and the Society for Advanced Research were also key places where I worked out some of the ideas that drive the book.

None of this work would be possible without the inspiration, collaboration and endless patience of Danielle, Sadie, and Dylan.

DUKE

**UNIVERSITY
PRESS**

x ACKNOWLEDGMENTS

INTRODUCTION

Governing the Anthropocene

At dawn on June 15, 2012, a detachment of heavily armed riot police approached an isolated land occupation in the district of Curuguaty in northeastern Paraguay. They were met by a small delegation of men from the camp, representatives of a local organization of landless *campesinos* who had been fighting for the right to settle there for generations.¹ That fight had recently intensified because land was becoming more scarce, because forests were almost gone, and because the massive ranch that claimed to own the land was beginning to plant soybeans, a crop that in Paraguay had come to represent the annihilation of a certain rural way of life. Tensions were complicated by the fact that the national government at the time, led by leftist president Fernando Lugo, claimed to prioritize rural welfare, land reform, and environmental regulation. And yet here were the police, armed as if for war, marching against a precarious encampment of families on the edge of a small stand of trees.

It is impossible to say exactly why, but a firefight ensued, and by the time it was over, six police officers and eleven campesinos were dead, with dozens more wounded or in jail. Within days, the “Massacre of Curuguaty” had been turned into a national crisis, and by the end of the week, the president

had been removed from office in what his supporters called a “parliamentary coup.”

Rural activists were stunned. It was hard enough to comprehend how a president they considered an ally might have allowed such a violent eviction to take place. Now they had to contend with the prospect that that ally was gone altogether, replaced by something far more sinister. The new president, installed the following day, immediately began to dismantle the tepid regulations that Lugo had enacted around the use of pesticides and genetic materials that were central to the soy boom. As Lugo’s replacement made the rounds declaring his friendship with soy farmers, he also mobilized the national police to protect crops from landless farmers.

As with any event of this sort, there are many ways to tell the story, many ways to sort out the main characters and attribute responsibility. The courts tried to construct their version of the story through a trial, but after seven years, all charges were dropped. Campesinos and human rights lawyers described the trial as a farce from the beginning. But behind its failure lies another possibility: the Massacre of Curuguaty wasn’t really amenable to the sort of storytelling in which people and their intentions occupy the main stage. Because while it was clearly a criminal event, the specific actors and actions were also participants in a larger, far more complicated drama whose contours were always present even if they were hard to make out.

Since the early 2000s, rural activists had been developing this larger story, which turned on a simple idea: *la soja mata* (soy kills). Those three words were useful as a slogan, yelled during marches and scrawled on banners and concrete all over Paraguay. But they also brought with them an analysis of a growing list of deaths, human and otherwise, for which soy could be held responsible. The Massacre of Curuguaty fit the story perfectly, confirming fears that as soy expanded, it robbed campesinos of their ability to harvest and live from their own preferred crops, undermined an old project to build a functioning welfare state, and made it impossible to imagine a government that responded to their interests.

This book tells the story of those soybeans, the way they transformed Paraguayan lives, both human and nonhuman, how they inspired a governmental response, and why that response failed so dramatically. Like all ethnography, it is a local story—a story of local people and plants, of histories of power and ecological entanglements, and of the travails of a small group of underfunded, inexperienced bureaucrats sincerely trying to make a difference. It is also a regional story of Latin America’s attempts to revive leftist



MAP INTRO.1 Map of Eastern Paraguay. Soy coverage derived from USDA, Paraguay Biotechnology Annual.

DUKE

**UNIVERSITY
PRESS**

politics in the early twenty-first century and the way that those attempts were thwarted by more cynical and destructive political rivals. And finally, it is a profoundly global story, a chapter in a century of expanding monocrops, of the destruction of ecosystems in the service of a specific model of human life. Like many other stories of the Anthropocene, it is about the difficulty of using government to mitigate the problems that government itself created during a quickly fading era when human well-being seemed to be achievable through the promises of limitless growth.

WHY SOYBEANS?

This project began for me years earlier, when I was living in Paraguay and trying to come to terms with the breadth of what my campesino friends meant when they said “soy kills.”² One of the people who worked hardest to educate me at the time was Ña Costanza, an activist who lived on sixteen hectares of land halfway down a long road known as Carmelitas.³ Her farm, like those of others who considered themselves campesinas and campesinos, was a mix of cash and subsistence crops, fruit trees, and forest. When I went to visit, her husband was usually out in the fields with the oldest of her twelve children, tending cotton, peanuts, corn, beans, and cassava; she could spare time to chat and drink *tereré* among the chickens, pigs, and the rest of her children. I went because Ña Costanza was kind, indulgent with my poor Guaraní, and never tired of talking about injustice. And because she had good stories about soybeans. She had been one of the first to complain when her next-door neighbor had sold his farm, and when the soy farmer who bought it started to fumigate the crop using a small tractor. She had led three January 2005 attempts to prevent that tractor from getting to the field, convincing other neighbors to block the road with her, yelling “la soja mata” at the driver.

For Ña Costanza and her neighbors, soy represented a completely novel kind of agriculture. It had been present in Paraguay since the late 1970s but had been concentrated primarily in the easternmost districts of the country. By 2000, however, soy was by far the country’s most profitable export, and the territory planted in soy was expanding westward at a rate of almost two hundred thousand hectares per year. The crop was grown on relatively large farms using high-end machinery and an increasingly complex portfolio of chemical inputs, meaning that soy was exclusive: it created fabulous wealth for a minority of farmers and dispossessed the rest of farmland and forest.

Moreover, it turned huge areas of the mixed landscape that the rural poor had once coveted into something alien—a blanket monocrop crawling with giant machines and soaked in pesticides. Land takeovers and pollution led thousands to move out of the countryside, finding refuge in the growing slums of Asunción, Buenos Aires, and São Paulo. Smallholder colonies, once the symbol of Paraguayan progress, began to shrink as households packed up and fled, abandoning cotton fields and gardens to bulldozers, fire, and then soybeans.

Ña Costanza argued that her neighbor's small plot of soybeans marked the beginning of an invasion—*la punta de la lanza* (the tip of the spear) that would destroy her community. Down at the end of Carmelitas, the first families to come into contact with soy farms complained constantly of the smell of pesticides and the headaches and rashes that accompanied spraying. The previous year, an eleven year-old boy had died near the Brazilian border after being sprayed by his neighbor. And just to the north, soy farmers had paid local police to evict campesinos (among them Ña Costanza's son) and burn down their houses. To the east, just across a small stream, the county of Toledo had almost no trees left; one small settlement there had disappeared completely as the land was covered in soybeans, while the town of Toledo built silos bigger than anything anyone had ever seen. Ña Costanza's family, like all of her neighbors, was too poor to plant soy. Instead, almost all of the beans were planted by Brazilian immigrants who had settled on the Paraguayan side of the border region and were now suddenly hungry for land. The combination of wealthy immigrants and soybeans seemed almost unstoppable—like the wind, Ña Costanza said. And if anything, this was the most unsettling effect of them all: the winds had changed. When they blew from the east they were stronger and hotter and carried noxious smells.

On the ground, the approaching beans were creepily homogeneous, a dense carpet of waist-high shrubs that grew together, turned brown almost overnight, and then disappeared over a few days of harvesting. Their uniformity matched the specs of the machinery that tended them, their genetics engineered to withstand a constant chemical assault that killed all other plants. Soybean farmers needed heat, sunlight, and relatively well-irrigated soil, but what they mainly needed was horizontal space with few obstructions (trees, water towers, pesticide regulations, or protesters). And this made it a particularly voracious driver of what has been called a “global land grab,” a rush to bring larger and larger arable areas of the planet into the production of industrial monocrops.⁴

Far from the field, soy was an ideal “flex crop,” whose value arose from the many different kinds of processing to which it could be subjected.⁵ Soy grown in Paraguay rarely stayed in Paraguay, but was already a ubiquitous if largely invisible part of modern life in many other countries. It was the world’s most common vegetable oil, and its by-products were used in processed food for everything from preservatives to adhesives. Outside of the food chain, it was turned into glue, grease, putty, varnish, fuel, plastic, linoleum, cement, clothing, foam stabilizer, and explosives.⁶ Its biggest use, however, was feeding animals destined for slaughter. When soybeans were crushed and the oils extracted, the remaining meal was the single-most-important ingredient in animal feed worldwide.⁷ Modern chicken and hog farming and the cattle feedlot industry could not exist without the annual global production of some 350 million tons of soybeans, a figure that kept growing every year.⁸

All of this made the soy of “soy kills” a complicated social, political, and environmental actor. In conversations like those I used to have with Ña Costanza, soy was not merely an object but also a reference to something—some larger force, process, or social ailment—that radically defied objectification. Its violence was generally slow, moving at the pace of unpleasant smells, toxic accretions, and cancer clusters.⁹ In the capital city, where so much of the regulatory politics actually took place, many activists had a clearer sense of the global structural stakes of the industry, the way it turned Paraguay into an extractive frontier for wealth accumulated elsewhere. But few of those activists had ever seen or smelled a soy field. So as it moved between campesinos and their urban allies, “la soja mata” could be incredibly polysemic, evoking in different contexts land loss, sickness, deforestation, climate change, neoliberalism, labor migration, global capitalism, Brazilian imperialism, agribusiness, biological manipulation, violence, poverty, injustice, and the loss of a way of life.

The mass noun “soy,” which in Spanish and Guaraní takes a definite article—“la soja”—made it easy to talk in these nonspecific ways. One could easily blame “la soja” for all of these things without specifying in what way it bore responsibility. What were its units? Was it made up of beans or silos and machinery or transnational companies or farmers? Did the wheat that farmers planted in rotation with soy or the Roundup herbicide they sprayed on it constitute part of “la soja,” or were they a separate problem?¹⁰ Because these questions never had stable answers, soy was less like an object than what Timothy Morton calls a “hyperobject,” a massively distributed thing that defies anyone’s ability to know it but nonetheless remains present, ex-

erting an agency beyond human control.¹¹ In this book, therefore, I treat soy less as a crop species or a commodity than as a character whose way of being in the world was complex enough to at times seem benign, at others terrifying, at others totally inscrutable.

The first part of the book, “A Cast of Characters,” tells the story of the rise of soy as a national political actor. But it also makes the case that soy is a character of the Anthropocene, in two specific ways. The first is literal: the Anthropocene is an age of monocrops. Soy, like other extensive, mechanized crops, drives climate change and mass extinction. It demands deforestation and in so doing degrades the soil’s ability to absorb carbon. It is energy-intensive, requiring massive inputs of fuel, fertilizers, and pesticides and is destined to feed a growing global meat industry that is one of the world’s largest producers of greenhouse gases.¹² Soy also drives species extinction by destroying habitat and requiring the industrial-scale annihilation of other creatures that it recategorizes as pests.¹³ As with other environmental processes, the speed and violence of these changes is geographically uneven: they accrue first in frontiers of extraction like Paraguay, while in other parts of the world they are felt mainly as a form of inexplicable market abundance in cheap meat and other goods.¹⁴

Second, soy is a character of the Anthropocene because of the way that it participates in a particular historical conundrum. At the moment it appeared, soy seemed like a crisis—a violent event overtaking people’s homes and lives. And yet like climate change, soy was also a perverse echo—the return, in monstrously inverted form, of a series of progressive promises made decades earlier. To the extent that soybeans present a problem for life, they do so as the result of a crisis in the notion of human welfare that was articulated after the end of World War II and spread to places like Paraguay through international development promoters. This period is often referred to as the great acceleration because of the sudden intensification in the use of fossil fuels and the advances it made possible in the standards of living of a certain portion of the human species.¹⁵ In agriculture, this era is known, somewhat ironically, as the Green Revolution, a time when huge investments in agrarian technology and intensified land use contributed to a diminution of hunger and an increase in national economic growth, all the while destroying forests and other complex ecologies. One reason it is so hard to figure out how to respond to agricultural destruction is the same reason that decarbonizing the economy is so difficult: the government systems we rely on to protect people and other living things from the ravages caused

by economic growth are impossible to disentangle from the same systems that promote that growth.¹⁶

WHY GOVERNMENT?

Paraguay's rural activists were hardly alone in thinking that the best way to mitigate the harm caused by soybeans was to appeal to the national government. It is a common premise of the global environmental movement that activities that produce widespread harm need to be governed in the public interest by a strong regulatory state. This premise is based on the idea that the state is the only apparatus able to effectively know and intervene on behalf of the common good in a world beset by complexity and uncertainty.¹⁷ In Paraguay, the promise of the state was structured around a diagnosis of its past debilities: the state apparatus had been controlled by a single party for the preceding sixty-one years and for most of that time by a notorious army general whose friends still wielded enormous political influence and were heavily invested in agriculture. By extension, it was possible to believe that capturing the state from those interests might make it possible to limit soy's destructiveness and revive an old promise of rural welfare.

In 2008, activists received a rare opportunity to try this hypothesis out. As part of Latin America's "left turn," Paraguayans elected as their president a soft-spoken rural bishop, Fernando Lugo, who received support from a ragtag coalition of opposition groups, technocratic reformers, Marxist sociologists, environmentalists, and peasant organizations.¹⁸ Soybeans did not figure prominently in Lugo's official platform, but for his rural supporters, his promises about integrated land reform and rural welfare were set against a backdrop of killer soy.¹⁹ Lugo's power to deliver on these promises was of course quite limited, but he did appoint a number of activists and environmentalists to top bureaucratic offices to see what they could do in the regulatory trenches of the agricultural state.

I refer to this group of activist bureaucrats, a small subset of Lugo's coalition, as the Government of Beans. Their four years in office constituted a kind of regulatory experiment, testing the hypothesis that a stronger state could curb the excesses of the soy industry. These new functionaries were concentrated in the Secretariat of Environment, the Ministry of Public Health and Social Welfare, the Institute for Rural Welfare (IBR), and most controversially in the obscure National Service for Plant and Seed Health and Quality (SENAVE).²⁰ They spent those four years trying to find ways

to address the problems caused by the soy boom using the information-gathering and regulatory capacities entrusted to their offices. But the enthusiasm and ambition of these activist bureaucrats far exceeded the limited resources at their disposal.

Activists in Lugo's government called what they were doing a *proyecto estado* (state project) that revolved around four ideals uniting leftist and centrist political movements.²¹ The first of these was social democracy, promoting a relatively interventionist role for state regulators in supporting welfare (health care, education, old-age security, and access to land) and social justice (social inclusion and environmental and labor rights). The second is what commentators in the 1990s called ecological modernization, which proposed that large-scale environmental harms could be solved by studying and regulating them.²² The third was transparency, built on the claim that inequality and violence resulted primarily from the corruption and incompetence of past governments, vices to be solved by institutional reform.²³ And the fourth was the assertion of national sovereignty, particularly in relation to the United States and Brazil, two countries long accused of imperialist meddling in Paraguay.²⁴

In each of the four dimensions, antisoy activists believed their state project could even stop the spread of soybeans. Soy was a detriment to social welfare, and campesinos felt they needed the state to protect them from it. Soy was an environmental predator, and it needed to be regulated by the state to prevent it from further destroying the environment. Soy was the result of government corruption, and once a clean government was in place that actually applied environmental laws, soy's excesses would be reduced. And soy was a product of Brazilian imperialism, since the crop was planted predominantly by Brazilian migrants living in the border region. The Paraguayan state was "absent" in these areas, activists often said, and by reasserting national sovereignty, Paraguayans would regain control over soy and its destructiveness.

It should come as no surprise, of course, that the promise of state regulation was extremely hard to achieve. Many anthropologists have pointed to the magical qualities of state thinking—the way it creates a notion of unity and coherence around the threat of violence while in practice that coherence is always vanishing or becoming fractious, multiple, and self-contradictory.²⁵ Morton describes the state as a hyperobject, because not unlike Paraguayan soy, it seems to be both everywhere and nowhere at once, impossible to completely locate or control but also impossible to ignore, an entity with its own kind of brutal agency.²⁶ And this is more or less how the

Government of Beans played out—as a bright promise that slowly became bogged down in the particulars, in the sticky relations between tools and objects, and in the ever-multiplying complexities of the task at hand.

In fact, the problems that lay ahead for the Government of Beans were prefigured by previous, less ambitious, regulatory failures in agriculture. One of these, at the very outset of the soy boom, is particularly instructive. In 2000, the government had banned the use of Roundup Ready soybeans, a new, genetically modified variety that had just begun to appear in Paraguayan fields. Following the lead of environmental regulators in Brazil, the sitting president had declared a moratorium on the use of any genetically modified seed pending further study of its environmental risks. Yet only a few years later, the Ministry of Agriculture recognized that at least 90 percent of the national soy crop consisted of Roundup Ready plants: practically the entire crop was illegal. The violation was so egregious that it became a joke among regulators, who referred to Roundup Ready soybeans as “soja Maradona,” after the Argentine soccer player famous both for his ability to work his way through any team’s defense and for having won a World Cup on the basis of an illegal hand goal.²⁷ Just as that famous “hand of God” goal had made a mockery of the idea that soccer was to be adjudicated by a neutral arbiter, soy had powers that, for good or for bad, had made a mockery of Paraguayan state sovereignty. Of course, there are many nonsupernatural reasons the ban never worked, but none of them completely accounts for the regulatory difficulties that soy caused over the course of Lugo’s tenure.

Indeed, the Government of Beans was always shadowed by the possibility that the entire notion of regulation on which it was based was upside-down. As many bureaucrats told me during this research, even as they were trying to find ways to curb the soy industry, they worried they had in fact been co-opted into doing the opposite, acting as functionaries in an *estado sojero* (Soy State), not unlike a petrostate in the thrall of a single, destructive industry. Regulators may have wanted to believe that the state was made to protect people’s right to live well in a healthy environment but often found themselves protecting soy itself, enforcing laws that were meant to strengthen the crop and promote its expansion. The problem perhaps was less state absence than regulatory capture or even more fundamentally that the entire regulatory apparatus had been built by the soy sector to service its own interests.²⁸

The title of this book, *The Government of Beans*, is meant to evoke this tension, since it can be read in two ways—as a body either controlling or controlled by beans. At times it was possible to keep these two state projects

distinct, and in these cases I use different names to flag the distinction: the Government of Beans refers to regulatory attempts to limit soy's expansion, whereas the Soy State refers to the way the soy industry used the state to help it expand. Often, however, it was very hard to distinguish them. For instance, Paraguay was often compared with Argentina, where the soy boom was almost as dominant in the national economy. There, the successive governments of Néstor and Cristina Kirchner chose not to limit soy but rather to tax it heavily and to use the money raised to help fund the expansion of welfare services. That model was similar to the way leftist governments in the region used revenue from oil, gas, and mining in a process that environmental critics labeled "neo-extractivism."²⁹ But although many Paraguayans promoted the Argentine model, a series of historical, territorial, and ethnic dynamics made the prosoy and antisoy positions much harder to reconcile in Paraguay.

This produced a pervasive sense that the instruments of state power did not quite fit the problem at hand. The lack of fit was at times existential, as in the conflict between the Government of Beans and the Soy State, but most of the time it was more mundane, a problem of regulatory pragmatics.³⁰ Regulation is the application of laws to the real world, and as in the courtroom, the gap between any rule and the real, messy situations to which it is supposed to apply becomes the place of judgment, where rule and situation need to be translated into adequate mirrors of each other. This gap and the discretion it affords the inspector, the lawyer, or the judge are one of the crucial sites for the exercise of exceptional power, or sovereignty.³¹ But to the extent that sovereignty seems like a spatial exercise—closing gaps between abstractions and actualities—regulatory pragmatics shows that the whole practice of law occurs through the progressive unfolding of responses between bureaucrats, politicians, lawyers, citizens, and the many nonhumans who are subject to regulation but have interests of their own. In the Government of Beans, even the smallest bureaucratic action, like an inspector filling out a report, could become part of a long game, a war of position about the future of the nation. Each step of regulation was about trying to change the conditions under which a dimly anticipated set of future actors would have to act, knowing the whole time that other actors and other projects, working at different tempos and in different time frames, were also affecting those future conditions.³²

As a result, the apparatus of the state always seemed out of phase with the phenomenon that regulators and activists were trying to regulate.³³

Consider a mundane example: farm inspectors were unionized employees

whose workday ended at three o'clock in the afternoon, and in fact, any farm inspection report drawn up after that time was not considered legally valid. Activists wishing that the inspectors would work a little harder often complained that "the soy doesn't stop working at 3:00 p.m." These little struggles over how to think about the time of regulation, plant growth, and human labor were further overwhelmed by the slow movement of legal procedures. In the time it took to put a crop of beans in the ground, tend it, harvest it, and sell it (around four months), it was difficult for a regulatory agency to mount a full response: to spot a problem, generate an official denunciation, allow due process to occur, and then sanction the farmer. Meanwhile, the whole process might be derailed by any number of conspiracies brewing within the government or the global economy or among fungal spores in Brazilian soy fields. Specific beans came and went, while the law took its time. And the reverse was also true: regulations changed, along with interpretations of those regulations, and those tasked with policing them came and went while soy remained and expanded, riding out inspections, court cases, scandals, elections, massacres, and coups.

The great experiment of the Government of Beans ended in a series of dramatic and unforeseeable events. In the wake of the Massacre of Curuguaty, Lugo was overthrown and his appointees were run out of their offices; many regulations they had passed were suspended and documents they had generated were burned. It was not the first time a government project had failed, and it would be easy to say that the violent capture of the state was only another iteration of a long-standing Paraguayan tradition. But experiments all have their peculiarities, and their failures leave remains from which future experiments will be built. In the immediate aftermath of the Government of Beans, those remains suggested a new way of thinking the long history of agrarian destruction.

AGRIBIOPOLITICS

One of the curious details of drama of the Government of Beans was the way that it made visible previously obscure bureaucratic offices, revealing them as sites of deep underlying tensions. The most important of these was SENAVE, the phytosanitary agency dedicated to governing the health of plants. If you've never heard of such an office, then you are like most Paraguayans prior to the Lugo's election. It is one of those technical state agencies that normally evades public attention, and its purview includes

making sure that seed sellers maintain germination standards, that farmers comply with wind limits on spraying chemicals, that bugs do not cross borders in truckloads of produce. It is a vital piece of all modern agriculture regimes, and participation in global markets is impossible without it, yet it rarely shows up in popular discussions of agrarian problems, much less coup plots. In retrospect, however, there was no more obvious place for the Government of Beans to play out, and untangling why that is offers a perfect window on the rise and intractability of modern monocrops.

The history of phytosanitary regulation looks a lot like classic biopolitics, the term Michel Foucault used to describe techniques for governing human life that emerged in the eighteenth and nineteenth centuries.³⁴ For Foucault, biopolitics ushered in a period of governing human life at the scale of the population, which could be helped to thrive through territorial interventions in reproduction and health, or allowed to die. Phytosanitary regulation works through a similar logic, as a way of governing the populations of crop plants living in a given territory and making sure that conditions are right for agriculture to prosper. Not surprisingly, both forms of regulation appeared around the same time and for similar reasons. The same conditions of densifying human populations that gave rise to public health also made it necessary to secure large-scale food production. The grain monocrops that emerged at this time were as vulnerable to pests as human populations in cities and required analogous governmental intervention at a scale beyond any single farm.

Until the early twentieth century, it was not uncommon to think of these two problems together, not just because they formed a singular system related to food security but also because so many analogies flowed easily between phytosanitary regulation and public health. Each one promoted health by controlling reproduction, killing invasive life forms, and limiting the movement of infected and susceptible organisms by instituting borders, quarantines, barriers, and buffer zones. Once modern agrichemicals (the phytosanitary equivalent of medicine) were added around World War II, these techniques made possible the massive boom in global agricultural production known as the Green Revolution. Although contemporary analysts began to separate human and plant health into fundamentally different categories, the Green Revolution was always justified in biopolitical terms, a project to “feed the world” that reimagined a target population at the scale of humanity.³⁵ But even as it created the possibilities for the emergence of a universalist understanding of human welfare, the Green Revolution was accomplished by opening new frontiers, enabling a new wave of settler

colonialism, and destroying forests and indigenous lives to make room for the large-scale production of singularly aggressive plants.

As I argue in the third part of this book, the Green Revolution also coincided with an epistemological shift in the way Europeans conceived of biopolitics, leading to the odd difficulty that Foucault and a generation of his followers had in talking about agriculture. Until the war, human and plant health regimes were often thought of together. And yet after the war they were increasingly thought of as completely distinct. That rift enabled a further blind spot in the way they thought about human welfare. As Europe and North America built robust new welfare states based on industrial growth, they encouraged countries in Latin America and Asia to invest in agricultural development on the promise that this would eventually equip them to emulate the North. The familiar story of biopolitics remained largely blind to the way that northern welfare states were built in part on the violent extractive frontiers being opened in other parts of the world at the expense of other forms of life.

To respond to this theoretical difficulty in talking about the relations between the government of human and plant health, I have started referring to the conflict over soybeans in SENAVE as “agribiopolitical.” In a longer genealogy of agribiopolitical arrangements, it becomes clear that soy was in many ways a continuation of previous developments (indeed, many have called it part of the Second Green Revolution).³⁶ For instance, most campesinos who complained about the soy boom had been the beneficiaries of a previous cotton boom. In their respective moments, both soy and cotton had benefited a great many humans and by different metrics had lifted Paraguay itself out of poverty.³⁷ Yet in other ways, soy and cotton were profoundly different. Prior to the 1990s, smallholders often marched in favor of greater access to pesticides, arguing that their well-being depended on killing off the various critters that affected their cotton and therefore their sometimes precarious foothold in modern economic life. By the time the Government of Beans came around, many of these same movements were demanding not that the state protect the crops that promoted their welfare but rather that the state protect them from crops that were killing them. For a small but growing population, soy was an invasive species in the full sense of the word, something foreign to the nation and an assault on its sovereignty and well-being.

The failure of the Government of Beans to respond adequately to campesinos’ plight is symptomatic of the difficulty contemporary state apparatuses have in dealing with other characters of the Anthropocene. As Anna Tsing

has pointed out, monocrops are emblematic landscapes of late capitalism, spaces of industrial killing that aim to simplify life into its most scalable, commodifiable forms.³⁸ They are also failures of imagination, products of a seeming paralysis in the way we think with nature—what Vandana Shiva has memorably called “monocultures of the mind.”³⁹ I propose agribiopolitics in the same spirit—that is, as a way of opening up noncanonical agrarian histories that offer a different appreciation of the relations at play in global agriculture and of the perverse role of nation-states within those relations. Agencies like SENAVE are, after all, managers in a global system of mass killing of insects, weeds, fungi, and crop species that global capitalism deems suboptimal. This puts such agencies at the center of a much larger conversation about the relations among agriculture, settler colonialism, ecocide, and genocide.

ETHNOGRAPHY IN THE ANTHROPOCENE

This book tells a story of how the dilemmas of the Anthropocene challenge governmental form; in the same way, they challenge the theoretical and narrative conventions of ethnography. One of the roles of theory for the social sciences is to provide a coherent language to describe complex phenomena and in so doing to transcend the phenomena themselves. But while I draw extensively from this analytic tradition, it was clear almost from the beginning of this project that such an analytic approach would itself be out of phase with the phenomenon I was researching. I might attempt to diagnose or evaluate governmental failure, but the exercise would be disingenuous. If anything, evaluation—the idea that building singular narratives of failure was the key to future success—seemed to miss the enormity of the problem at hand.

So while this book shares a lot of interpretive resources with political economy, science and technology studies, and Foucauldian genealogy, it does not attempt to resolve the well-known tensions between these approaches in a new synthesis.⁴⁰ The text is divided into three parts, each broadly addressing a different conceptual problem. In part I, I ask how soybeans became political. In part II, I explore why the Government of Beans backfired. And in part III, I take in a much longer history and ask how the Government of Beans is symptomatic of the Age of Monocrops. Each one deploys a distinct analytic language to tackle these questions. Furthermore, each section evokes a distinct ethnographic mood through which

Paraguayan activists and regulators lived. In the lead-up to Lugo's election, I dwell on the pervasive sense of agrarian injustice that characterized rural politics as soybeans became prominent actors. During the Government of Beans itself, I look at the day-to-day grind of trying to actualize the great promise of regulation that arose after the election. And after Lugo's fall, I capture something of the pessimism that engulfed the same people and political movements and brought back a sense of *longue durée* inevitability.

But even these three frames only partially strive for internal coherence, and the relations between individual chapters are purposefully disjointed. The book moves through a series of stuttering attempts to understand particular situations that are never entirely resolved. If one of the purposes of ethnography is to evoke the experience of its main characters, then part of what I want readers to feel is the way that bureaucrats and activists struggled to understand their own unstable condition. Each project undertaken remained slightly incomplete, each new urgency redefined the frame of what the Government of Beans was all about. Many projects were simply left unfinished, questions left unanswered as people were removed from their jobs, records were lost, or new crises engulfed the interpretive frame. To evoke this, each chapter tells a story or a parable using different characters. But the chapters are also deliberately short, ending before I am able to sew up the excessive loose ends. In that sense, then, the book is an attempt at writing the Anthropocene, experimenting with available languages, tools, scales, and tempos through a series of cascading situations.⁴¹ Like its protagonists, it never presumes to have found a stable answer but simply tries to keep up with its objects.

It is not unusual in the social sciences today to encounter attempts to represent worlds as multiple and heterogeneous. But a brief comparison might help to illustrate how much more unsettled the world of the Government of Beans is—not just at an ontological level but also at a conceptual level—than most of these depictions. One of my models going into this project was Annemarie Mol's brilliant book, *The Body Multiple*, which argues not only that things are ontologically multiple but also that our attempts to understand them add to this multiplicity.⁴² I often felt during the Government of Beans that this was the most hopeful version of what technocratic intervention might look like. As Mol shows, there are times when the multiplicity of technical objects *works*. In the case she studies, different medical specialists working in a Dutch hospital produce ontologically distinct versions of the disease atherosclerosis. And yet despite radical differences, clinicians and pathologists coordinate to produce a system that hangs

together well enough to diagnose and treat patients reasonably effectively. My optimism that environmental governance might work in a similar way linked me to the regulators I studied, all of whom knew that the task—or tasks—ahead would be monumental but nonetheless believed that they were worth trying, in fragmentary but coordinated fashion, using whatever tools and training they had at hand.⁴³

Yet when the Government of Beans ended in a massacre and a coup, it finally became clear why the analogy could not hold. The idea that one could hold multiplicity together analytically may work well in specific contexts such as a hospital in a wealthy country, where divergent knowledge practices are underwritten by an uncontroversial project to promote patient welfare. But in a field where the welfare of one population is constructed at the expense of another, where expertise around certain plants relies on the annihilation of others, and where all the actors are enmeshed in long-standing struggles to control not only resources but the offices charged with redistribution, the grounds for coordination are far more unsettled. One could of course point out that the Dutch hospital's notion of welfare is itself dependent on frontier violence occurring elsewhere and on a history of colonialism that extracts resources from places like Paraguay, shipping them along old colonial navigation routes to the port of Rotterdam. These questions are not absent from Dutch politics. In fact, in 2014, a Dutch think tank published a report worrying about Paraguay's growing resistance to monocrops when the Dutch economy depended on an estimated eight million tons of Paraguayan soybeans annually.⁴⁴ But those worries do not generally crash in on the hospital, and the work of treating diseases functions locally only because the violence that made it possible in the first place remains offstage.

In the Government of Beans, there was no offstage because every attempt to regulate agriculture connected beans, farmers, and regulators into intractable Anthropocenic conspiracies and made obvious how the devices of government were always at some level complicit in the destruction they sought to mitigate. Soy is not a multiply enacted object but a hyperobject that thrives in the violent morass of neocolonial extraction. This book demonstrates some ways in which governmental practice at times made soy seem knowable or controllable. It is astonishing, for instance, how much government infrastructure goes into assuring that one can reliably measure and report the moisture content of a given sample of soybeans. But for those wishing to measure the rise in cancer rates around soy fields, the effects on rural welfare of the ever-present smell of herbicides, or the link

between farm size and unemployment, the infrastructure is far less reliable. These things are harder to know because they make it harder to separate the question of what objects are being measured from the question of who controls the instruments that define those objects and the history of who killed whom to get control of those instruments. These difficulties do not necessarily make the task of measurement or regulation impossible, nor do they doom all similar governmental experiments to failure. But they do make the Government of Beans a cautionary tale about a particular story of government promise and about how fraught the terrain of experimentation has become.

DUKE

**UNIVERSITY
PRESS**

NOTES

INTRODUCTION

1. *Campesino* is often translated as “peasant,” though in Paraguay it is as much an identity category as a class one. I use the Spanish throughout to avoid losing this specificity.
2. Hetherington, “Beans before the Law.”
3. Ña Costanza is a pseudonym, as are all personal names in this book other than those of public figures.
4. See Zoomers, “Globalisation and the Foreignisation of Space”; Borras et al., “Land Grabbing and Global Capitalist Accumulation.”
5. Borras et al., “The Rise of Flex Crops and Commodities.” Oil palm and corn are similar crops in this way, as are industrial hogs, whose rendering creates no waste because it is converted into everything from pork chops to lip gloss. See Blanchette, *Porkopolis*.
6. du Bois, Tan, and Mintz, *The World of Soy*.
7. See Ash, Livezey, and Dohlmán, *Soybean Backgrounder*. In 2006, it accounted for 65 percent of nonforage animal feeds globally.
8. See Eric Schroeder, “IGC: World Grains Output on Pace for Second Highest Total,” *World Grain News*, October 2, 2017, <https://www.world-grain.com/articles/8741-igc-world-grains-output-on-pace-for-second-highest-total>.

DUKE
UNIVERSITY
PRESS

9. Nixon, *Slow Violence and the Environmentalism of the Poor*.
10. Roundup is by far the most important pesticide used in soy farming. A broad-spectrum herbicide, Roundup is the brand name given by Monsanto to the generic glyphosate. Although Paraguayans now use many different generic versions of glyphosate, I refer to all of them as Roundup for continuity.
11. Morton, *Hyperobjects*. While I find the concept useful to a point, the way I use it departs somewhat from Morton's "object-oriented ontology" because, at least in the case of soy and the state, I treat the indeterminacy of objects as relational in a manner closer to actor-network theory.
12. According to the most recent report of the Intergovernmental Panel on Climate Change, land use accounts for 23 percent of global greenhouse gas emissions, with the worst contributors being deforestation and livestock-raising (see IPCC, *Climate Change and Land*). Transportation produces another 14 percent. These numbers are not particularly meaningful on their own, but the Food and Agriculture Organization's 2006 report on the meat industry's impact on climate change and biodiversity loss offers a comprehensive picture of why the industry is so particularly damaging. See Steinfeld et al., *Livestock's Long Shadow*.
13. See Kolbert, *The Sixth Extinction*; Muir, *The Broken Promise of Agricultural Progress*.
14. Moore, "The Capitalocene, Part I." This unevenness and the role that capital accumulation plays in generating new extractive economies have led Moore, among others, to use the word "Capitalocene" instead of "Anthropocene."
15. Steffen et al., "The Trajectory of the Anthropocene."
16. The clearest echo here is to Mitchell, *Carbon Democracy*.
17. Scott, *Seeing Like a State*, 183.
18. Levitsky and Roberts, *The Resurgence of the Latin American Left*.
19. For a nuanced assessment of Lugo's relationship to land reform and rural welfare, see Ezquerro-Cañete and Fogel, "A Coup Foretold."
20. In 2002, the Institute for Rural Welfare (IBR), was renamed the Instituto de Desarrollo Rural y de la Tierra (INDER). Although its mandate was updated and some of the titles changed to become more contemporary (most notably, dropping the word "welfare" in favor of "development"), the institution's functions changed very little. Because this book jumps back and forth in time, I refer to it throughout as IBR for the sake of continuity.
21. In this regard, Lugo's coalition was similar to the movements that had won power in the past decade in Brazil, Uruguay, and Argentina. The left turn in Latin America also had a more radical variant led by Venezuela and Bolivia.
22. The term "ecological modernization" is associated with thinkers such as Ulrich Beck (*The Risk Society*) and Anthony Giddens (*Modernity and Self-Identity*). See also Buttel, "Classical Theory and Contemporary Environmental Sociology." For histories of the rise of modernist government in environmental thinking, see especially Mathews, *Instituting Nature*; Agrawal, *Environmentality*.

23. See Abrahamsen, *Disciplining Democracy*; Guilhot, *The Democracy Makers*; Hetherington, *Guerrilla Auditors*.

24. During Lugo's government, this played out particularly in energy policy and the successful renegotiation of a usurious energy treaty between Brazil and Paraguay centered on the Itaipú Dam. For a full discussion, see Folch, *Hydropolitics*.

25. Coronil, *The Magical State*; Taussig, *The Magic of the State*; Das and Poole, *Anthropology in the Margins of the State*; Hansen and Stepputat, *States of Imagination*

26. Morton, *Hyperobjects*.

27. Robin, *The World According to Monsanto*.

28. This maddening double bind recapitulates one of the core debates in legal sociology and political science: public interest theories that suggest the state works in the interest of a collective good versus regulatory capture theories positing that regulatory apparatuses always respond to special interests (see Levine and Forrence, "Regulatory Capture").

29. Gudynas, "Extractivismos y corrupción"; Svampa and Viale, *Maldesarrollo*.

30. I elaborate on this notion of regulatory pragmatics in Hetherington, *Guerrilla Auditors*, inspired by Riles, *The Network Inside Out*; Hull, *Government of Paper*.

31. Das, "The Signature of the State."

32. On the future perfect construction of regulatory work, see Ballesterio, *A Future History of Water*.

33. The term "out of phase" comes from Morton, *Dark Ecology*, 7.

34. Foucault, *The Birth of Biopolitics*; Campbell and Sitze, *Biopolitics*.

35. Cullather, *The Hungry World*.

36. On the Second Green Revolution, see Conway, *The Doubly Green Revolution*; Dano, *Unmasking the New Green Revolution in Africa*.

37. On the Human Development Index, measured by the UNDP, Paraguay increased its ranking more than any of its neighbors over the period in question, a ranking of some consequence, since it made it increasingly difficult for Paraguayans to access international development funding (see UNDP, *Paraguay*).

38. Tsing, "A Threat to Holocene Resurgence." Haraway, *Staying with the Trouble*, has suggested we call it the "plantationocene," a term I avoid because of the way the word "plantation" evokes a particular labor-intensive agribiopolitics that has never been applied to soybeans.

39. Shiva, *Monocultures of the Mind*.

40. For political economy, see especially the peasant studies and agrarian studies traditions (exemplified by works like Lapegna, *Soybeans and Power*, Fitting, *The Struggle for Maize*) and the critiques of global agrarian regimes (such as Patel, *Stuffed and Starved*; Moore, *Capitalism in the Web of Life*). For science and technology studies, see Mol, *The Body Multiple*; Law, *After Method*; Law and Mol, *Complexities*. For genealogies of life, see Cooper, *Life as Surplus*; Sunder Rajan, *Biocapital*; Povinelli, *Geontologies*; Murphy, *The Economization of Life*.

41. When I began planning this book I had three specific examples in mind of books that dealt with this problem of complexity: Raffles, *Insectopedia*; Tsing, *The Mushroom at the End of the World*; Fortun, *Promising Genomics*. Each of these books, while very different, innovates on the form of the chapter, allowing its objects and narratives to emerge as composites rather than as singular descriptions.

42. Mol, *The Body Multiple*.

43. On regulatory techniques and devices used in this way, see especially Law and Ruppert, "The Social Life of Methods: Devices"; Ballester, *The Future History of Water*.

44. See Centre of Expertise on Resources, *Soy Supply Security for the Netherlands*.

PART I. A CAST OF CHARACTERS

1. Ciancio, *La soja y el problema alimentario*. The claim is largely accepted in Paraguay, and he was recently the subject of a biography by González de Bosio, *Pedro Nicolás Ciancio*.

2. The contrast between civilization and barbarism was a key trope of Latin American liberalism, expressed most famously by Domingo Sarmiento, the Argentine president who had seen the war against Paraguay as a civilizing war (Sarmiento, *Facundo*).

3. Cited in González de Bosio, *Pedro Nicolás Ciancio*, 42. Unless otherwise noted, all translations are by the author.

4. It's not clear that Jefferson ever actually said this, but it was much quoted as a eulogy to the scientists of the Green Revolution (see Kloppenburg, *First the Seed*, 50).

5. Ciancio, *La soja y el problema alimentario*, 27.

6. See González de Bosio, *Pedro Nicolás Ciancio*, 17. It's not clear where Estigarribia got the soy wafers for his plan, but at the same time, the US began to promote soy production as a way to make up for dietary deficits among Allied troops in Europe. It was this project, feeding soy to soldiers, that made the US the world's largest soy producer and exporter, surpassing Manchuria, which had led the way to that point (Shurtleff and Aoyagi, *History of Soybeans and Soyfoods*).

7. Ciancio, *La soja y el problema alimentario*, 26.

CHAPTER ONE. THE ACCIDENTAL MONOCROP

1. See Mora and Cooney, *Paraguay and the United States*. The abbreviation STICA stands for Servicio Técnico de Investigación Científica y Agrícola.

2. Also, 1943 was the year that the International Maize and Wheat Improvement Centre (CIMMYT) was built in Mexico, the flagship of what would later be called the Consultative Group on International Agricultural Research, or CGIAR.