Building alternative food economies for justice and sustainability: Organic and agroecological agriculture in Argentina

by

Isaac Sohn Leslie

A dissertation submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

(Sociology)

at the

UNIVERSITY OF WISCONSIN-MADISON

2020

Date of final oral examination: 11/23/2020

The dissertation is approved by the following members of the Final Oral Committee:

Jane Collins (co-chair), Frances Perkins Professor, Community and Environmental Sociology, University of Wisconsin-Madison

Monica White (co-chair), Associate Professor, Environmental Justice and Community and Environmental Sociology, University of Wisconsin-Madison

Michael Bell, Vilas Distinguished Achievement Professor, Community and Environmental Sociology, University of Wisconsin-Madison

Steph Tai, Professor, Law, University of Wisconsin-Madison

Pinar Batur, Professor, Sociology, Vassar College

Table of contents

Acknowledgements

Argentinian farmers, organizers, government officials, and other leaders in the alternative food scene humbled me with their generosity, keen insights, and passion for building something different. Their willingness to speak from their experiences and their hearts, to show me their farms, and to challenge me helped me question my own beliefs and added layers of nuance to my understanding of the world of alternative food systems. Regardless of differences, I developed a deep respect for every person I spoke with and for their efforts to make something new in an otherwise unforgiving food economy. I am grateful for their contributions to this project and for the work they do every day.

This dissertation would not have been possible without the generous financial support of a U.S. Department of Education Fulbright-Hays Doctoral Dissertation Research Aboard Fellowship; a U.S. Department of State Fulbright Study/Research Grant; a Rural Sociological Society Dissertation Research Award; a Mellon-Wisconsin Fellowship; a Center for Integrated Agricultural Systems Mini-Grant; University of Wisconsin-Madison Community and Environmental Sociology Department Evelyn T. Crowe Dissertation and Pre-Dissertation Research Awards; and several University of Wisconsin-Madison Sociology Department Small Grants.

My co-advisors and committee have deeply impacted the content of this dissertation as well as who I want to be as a scholar. Jane Collins taught me to observe commodity chains as a feminist and showed me the meaning of rigor and empathy. Monica White modeled how to live the values of food justice from within the academy, reminding me that I am not here for myself, but for the communities I am engaged with. Mike Bell taught me how to observe farms from unexpected perspectives, always encouraging creativity. Steph Tai offered new ways of

envisioning food systems governance, demonstrating how theory and practice can build each other. Pinar Batur gave me a foundation for critiquing injustice in economic systems, while always encouraging me to ask, what does this mean for the future? These examples and countless more are gifts for which I am profoundly grateful.

Tom Safford (University of New Hampshire) was instrumental in helping me conceive of this project, getting my first grant, and modeling how to do this type of work as an environmental sociologist. Clara Craviotti, rural sociologist and researcher at the National Scientific and Technical Research Council (CONICET), Argentina, generously offered insights on the social and spatial organization of alternative food systems and opened doors that led me to a much more profound understanding of the Argentinian foodscape. Angela Serrano (University of Wisconsin-Madison) met with me regularly throughout the entire writing process, offering countless ideas about the dissertation and how to responsibly navigate my positionality while doing this research. Danielle Falzon (Brown University), Emily Kyker-Snowman (University of New Hampshire), Mark Anthony (ETH Zürich), and Jaclyn Wypler (University of Wisconsin-Madison) offered valuable feedback and support from the beginning of the research process. Professors and graduate students in the following University of Wisconsin-Madison seminars contributed to the development of this project over the years: Community and Environmental Sociology, Socio-economic Change and Development, and Femsem (Sociology of Gender).

Finally, Wichie Artu has been a steadfast partner as I – and many times we – bounced among Argentina, New England, and Wisconsin.

It takes a community to bring a project like this into the world. To all of you who contributed a moment or more to this journey, I appreciate you.

List of acronyms

AFN	Alternative food network
APROBA	*Asociación de Productores Orgánicos de Buenos Aires* – Association of Organic Producers of Buenos Aires
CAPOC	*Cámara Argentina de Productores Orgánicos Certificados* – Argentine Chamber of Certified Organic Producers
CACER	*Cámara Argentina de Certificadoras* – Argentine Chamber of Certifiers
CSA	Community supported agriculture
FAO	Food and Agriculture Organization of the United Nations
FAUBA	*Facultad de Agronomía de la Universidad de Buenos Aires* – School of Agriculture of the University of Buenos Aires
FCC	Feminist commodity chain
GCC	Global commodity chain
GVC	Global value chain
GHGe	Greenhouse gas emissions
GMO	Genetically modified organism
IFAD	International Fund for Agricultural Development
IFOAM	International Federation of Organic Agriculture Movements, known as Organics International
IICA	*Instituto Interamericano de Cooperación para la Agricultura* – Inter-American Institute for Cooperation on Agriculture
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
INTA	*Instituto Nacional de Tecnología Agropecuaria* – National Agricultural Technology Institute

INTI	*Instituto Nacional de Tecnología Industrial* – National Institute of Industrial Technology
MAELA	*Movimiento Agroecológico de América Latina y el Caribe* – Agroecology Movement of Latin America and the Caribbean
MAPO	*Movimiento Argentino para la Producción Orgánica* – Argentinian Movement for Organic Production
NGO	Non-governmental organization
RENAMA	*Red Nacional de Municipios y Comunidades que Fomentan la Agroecología* – National Network of Municipalities and Communities that Promote Agroecology
SENASA	*Servicio Nacional de Sanidad y Calidad Agroalimentaria* – National Service of Agrifood Health and Quality
SMO	Social movement organization
SOM	Soil organic matter
USDA	United States Department of Agriculture
UNICEF	United Nations Children's Fund
UTT	*Unión de Trabajadores de la Tierra* – Land Workers Union
WFP	World Food Programme
WHO	World Health Organization

List of figures and tables

Figures

Tables

Abstract

This dissertation compares different alternative agriculture pathways for reversing industrial agriculture's contributions to global existential problems: climate change, biodiversity loss, toxic exposures, and food insecurity. One pathway is certified organics, a rapidly growing global industry that mainly addresses toxic exposures. Another is agroecology, a mode of production and social movement that addresses broader social and ecological concerns but is struggling to expand its economic foothold. I conducted an ethnography that compares certified organic and agroecological food supply chains in Argentina, a country with the second-most acreage in organic production in the world and home to innovative agroecology models. Three linked papers compare organic and agroecological farms based on social outcomes (chapter two), ecological outcomes (chapter three), and strategies for economic viability, necessary for producing social and ecological outcomes (chapter four). I argue that the current political economy of alternative food stunts its transformative social and ecological potential through market-embedded food supply chains organized by racial, gender, and sexual inequalities. Together, these papers contribute to our understanding of how the structure of alternative food economies affects justice and sustainability:

Chapter two – "'Organic is capitalist and agroecology is socialist': Alternative farmers' approaches to food insecurity beyond dualisms" – distinguishes six subgroups of alternative farms and compares their food security-related social outcomes. My approach disrupts scholars' and practitioners' typical portrayal of a bifurcated split of alternative farmers between corporate organics and the radical rest (agroecologists, in Argentina), showing how all farmers act based on a mix of market interests and movement values. Still, when I compared these subgroups

according to the way each defined and valued food security, I found that the farmers who most prioritized equity were the ones with the least power to expand food supply chains that enact it.

Chapter three – "The alternative agriculture house: Movement building for tackling toxicity, biodiversity loss, and the climate crisis" – evaluates the ecological outcomes of six alternative farm subgroups. I offer a model – "the alternative agriculture house" – that explains how the political economy of alternative agriculture prioritizes certain ecological goals over others. The house illustrates the relationship between certified organics' minimum standard approach (the "floor") and agroecology's continual improvement approach (the "roof"). This relationship reveals structural tendencies in food supply chain governance that affect justice and sustainability, as well as leverage points for intervention.

Chapter four – "From markets to social mycorrhiza: Alternative farm viability strategies" – examines how six subgroups of alternative farmers access key resources for economic viability: land, labor, credit, and knowledge. I offer a framework – "social mycorrhiza" – that uses the ecological concept of mycorrhiza as a metaphor for how some economically and socially marginalized actors access key resources through trust-based social ties rather than through the market. Social mycorrhiza explains cooptation – when economic interests are likely to prevail over social values – and burnout – when economic viability unsustainably takes a back seat to movement priorities. Social mycorrhiza describes the social relational infrastructure of agroecological economies.

This research has implications for recent calls to redesign food systems as a key part of a global Green New Deal. Each empirical chapter unpacks a farm-level indicator of continually improvable practices for justice and sustainability. I also offer two frameworks – the alternative agriculture house and social mycorrhiza – as guides for enacting structural changes that build

more socially just and ecologically sustainable alternative food economies.

Chapter 1 – The politics of organics

INTRODUCTION

When my partner and I set out to start our small-scale farm in Vermont, U.S., experienced farmers told us that the market for local food was saturated. I heard this time and time again, and not just in Vermont. But I could not stop thinking, how could it be that there is no demand for food from one more local farm, when the big supermarkets in town were overflowing with food grown across the world? True, local food consumption had more than doubled in Vermont between 2010 and 2017, but as of 2017 Vermont-grown food was still only 13% of what Vermonters consumed (Farm to Plate 2020). How could we make a small-scale farm like ours provide us a reasonable livelihood? Is the only way to economic viability selling in a niche organic market that only those with the means can afford? How can we afford to farm in a way that fulfills the broad social and environmental goals that attracted us to alternative farming in the first place, when the market does not seem to make that possible? Moreover, would our rural farming community react to us – a queer interracial couple – in a way that would hurt our farm's economic viability?

This was the puzzle I set out to crack by pursuing a Ph.D. in the sociology of alternative food systems. What I thought were local questions ended up leading me around the globe, as I discovered that even my "local" Vermont food system was anything but local. Whenever my neighbors shopped for food, they decided between local food or food shipped in from places like Argentina – either "conventional" industrial food or imported certified organics. And even the most loyal local CSA (Community Supported Agriculture) members would buy global certified organics in the winter, discouraging local farms from pursuing season extension techniques,

preserving their produce, or growing storage crops. Different ways of growing alternative food are always in competition with each other, and with industrial food. For the local, socially just and environmentally sustainable farm we envisioned to feed regular people – and not just the 13% already eating locally – I needed to learn a lot more about the political economy of organics. I wanted to know why our food economy rewards shipping certified organics around the world more often than it does growing locally. To understand this, I wanted to meet certified organic export farmers in their home country and learn why they took the export approach to alternative agriculture. And I wanted to get to know the local alternative farmers who were neighbors with those export organic farmers to learn why they chose a different approach and what strategies they used to make their farms economically viable.

To learn more about these organic export farms and neighboring local alternatives to them, I began research in Argentina: a global powerhouse of certified organic production, with the second-most acreage in certified organic production globally, ahead of the U.S. (Willer and Lernoud 2017). Argentina ships 98.7% of its certified organics internationally, mostly to the U.S. and Europe (SENASA 2017). Argentina is also home to innovative, local, non-certified "organic" projects that have a broader set of environmental and social movement goals: what much of the world refers to as "agroecology." Many of my neighboring alternative farmers in Vermont use agroecological practices like diversified farming and integrated plant-animal systems (Kremen and Miles 2012), though they more often name those practices things like "regenerative agriculture," "local organic," or "beyond organic." Like in Argentina, these "agroecological" farmers are often neighbors with certified organic farmers who typically sell into more corporate and longer-distance food supply chains.

Divergent alternative agriculture pathways in Argentina today stem from a shared history of a broader food economy unfriendly to rural communities and the environment. Even as a historic agricultural exporter, small farms have long been important to Argentina's rural culture, economy, and environment (Barsky and Gelman 2001). In the 1990s, global agribusiness led unprecedented industrial agricultural development in Argentina (Craviotti 2015). Large producers for export displaced small-scale farmers, changing rural communities (Gras 2012; Manildo 2013). While profitable for corporations, industrial agriculture took a toll on communities and the environment and diminished the economic and social sustainability of small farms (Gras 2009; Manuel-Navarrete et al. 2009). Some large producers converted to certified organics to capitalize on the growing market for organics in the north (Raynolds 2004). At the same time, other Argentinian farmers resisted by turning to agroecology and local supply chains (Acosta and Verbeke 2009; Craviotti and Pardías 2013; Craviotti and Wilches 2015).

In this context, I conducted an ethnography that compares Argentinian certified organic and agroecological food supply chains, focusing on the point of production. Thanks to the support of several research grants, I went to Argentina for seventeen months over three trips between 2015 and 2020. Argentinian certified organic and agroecological farmers, vendors, distributors, movement leaders, and government officials welcomed me with open arms. Like in my home country, these people who comprised the "alternative food movement" were sometimes bitterly divided and at other times inspiringly cooperative. Their farms, social and environmental goals, economic viability, and experiences of social privilege and oppression varied widely. I came to deeply respect each and every one of them, recognizing that they were all trying to offer an alternative to the dominant industrial food system, and everyone was acting within the constraints of an unforgiving food economy. Both the particularities of the

Argentinian context and the similarities I saw with my own taught me something bigger about different pathways for building alternative food economies that prioritize justice and sustainability.

What I learned matters for reversing the dominant food economy's (1) poisoning of food workers, consumers, and the environment (Magdoff, Foster, and Buttel 2000; Pellow 2007), (2) destruction of global biodiversity (IPBES 2019), (3) contribution to the climate crisis (IPCC 2014), and (4) relationship with poverty that leaves about one in ten people severely food insecure while producing more calories than the world needs (FAO et al. 2020: xvi). The good news is that we already have alternative ways of growing food that eliminate toxic exposures; increase biodiversity; help mitigate and adapt to climate change; and feed communities in healthy, culturally appropriate, and democratic ways. Today, the biggest barrier to transitioning to these types of alternative food systems is less an issue of developing and disseminating agricultural techniques than it is a social question about what kind of future food economy we want to leave behind to future generations. This dissertation seeks to inform that social question by investigating hopeful pathways in alterative agriculture. But finding these pathways starts with getting to know your farmers.

***

After a few hours on a public bus, the driver stopped and kindly pointed me to the dirt road I had asked them for help finding. I started walking in the direction I expected to find Sofía's agroecological farm, but I was unsure where I was going because the roads were not marked. Later, a neighboring agroecological farmer told me that this road becomes so muddy when it

rains that even their pickup truck cannot get their produce to market. I was strolling through the *pampa húmeda*, or flat, grassy plains prone to flooding that have long been the breadbasket of Argentinian export agriculture: once for the grass-fed beef that helped make Argentina one of the wealthiest countries a century ago (Glaeser, Di Tella, and Llach 2018) and now for the chemical-laden GMO soy and cereals that Argentinian governments of all political persuasions see as their main hope for getting the country out of debt with the International Monetary Fund. This type of extensive industrial agriculture leads to farm consolidation and drains the economies of rural Argentinian communities (Gras 2009; 2012; Manildo 2013), so it was no surprise that as I walked I could not see anyone in any direction I looked. Finally, someone appeared on the horizon, and as they walked toward me, to my surprise, I recognized them as René from a "solidarity economy" market similar to the one that Sofía sells at in the city. As I would learn, all of the agroecological farmers in this area were well connected and were each other's lifelines for surviving in a type of food system that was fundamentally different from the monocultural geography and export economy that surrounded them on all sides. René pointed me toward Sofía, deeper into the countryside, as he said goodbye and headed into the city.

"We're out of power,"[1] Sofía lamented as she invited me onto her eight-hectare (20 acre) diversified agroecological farm. Someone had stolen the transformer off the pole, leaving her without electricity and worrying if the free-range chickens she had raised were going to spoil in the freezer. With her cell phone out of battery, I felt lucky that I had found her farm at all, despite being only about 40 kilometers (25 miles) from the center of Buenos Aires: a city with a metropolitan region three times the population of Boston's. Sofía showed me her vegetable

[1] "Estamos sin luz" (Sofía)

seedlings, grown from ancestral seeds she saved in collaboration with a local agroecology organization's seed bank. The watermelon, squash, and sweet corn seedlings were still in their trays, overdue to be planted because there was more work to do than the farm had the labor capacity to do it. The seed bank was especially important to Sofía not only because it connected her to her Indigenous roots, but also because the new neoliberal administration eliminated state programs that used to help her acquire seeds. We walked into the one polytunnel[2] she had that was still standing, a relic of an earlier administration that offered more support to small-scale farmers like Sofía. As we weeded carrots together, Sofía told me about how fortunate she was to have access to this land. It even had a stream with enough water for irrigation. But she lamented, "the stream water comes from the strawberry fields and it's totally contaminated. So, I can't use it."[3] The neighboring industrial farmers' agrochemical pollution rendered Sofía's access to water on her own land useless for agroecological farming. Still, Sofía had persevered through much worse than this. She smiled at me as she prepped to sell vegetables in the city.

Sofía sold food at a market that she and other small-scale agroecological farmers cooperatively organized years ago as part of a broader "solidarity economy" movement that sought to make economic exchange more friendly to workers and the environment. The area has since gentrified considerably. Not too far away, in what has become a trendy foodie neighborhood full of boutique shops and nightclubs, I later visited another alternative farmer. An employee welcomed me into the office of Cereales Orgánicos, a certified organic exporter. The building was newly refurbished with stainless steel accents and stylish reclaimed wood. The employee seated me in a conference room equipped with videoconferencing equipment,

[2] Also known as a hoophouse or high tunnel

[3] "el agua del arroyo viene de la frutilla y de todo contaminado. Entonces, a mí no me sirve." (Sofía)

presumably for communicating with food supply chain partners around the world. They generously offered me a coffee as I waited for the farmer to arrive to our interview.

Unlike Sofía, Matías from Cereales Orgánicos spends most of his time in business attire, not working in the fields. Despite their very different lifestyles, these are the people who make the big decisions on the farm; things like what to grow, how to acquire seeds, and what food supply chains to sell into. Matías' interest in certified organics took off in 2001, when Argentina's economy crashed. He explained, "It was a grave crisis, that was 2001. I was sitting at my desk all day long and did not have anything to do, there wasn't money…I couldn't just not do anything, so I started researching [organics] and all the time was seeing that the world of organics was growing."[4] In 2001, while Matías was responding to the economic crisis by researching the growing global organic commodity markets, Sofía was just several bus stops away, with a team cleaning an abandoned building to turn it into a local solidarity agroecology market. Matías explained, "the idea we had for the business was to develop organic rice production…without the smoky smell, because we dried the rice with wood…In other countries it is with gas. In Argentina, wood in those places is free because there are forests."[5] With a team of employees and contract producers, Cereales Orgánicos now produces on 2,500 hectares (6,178 acres), mostly feeding middle and upper-income consumers in the U.S. and Europe.

***

[4] "Estaba en crisis grave, era el 2001. Yo estaba sentado todo el día en mi escritorio y no había nada para hacer, no había dinero…no podía estar sin hacer nada, me puse a investigar eso y veía todo el tiempo cómo crecía el mundo de orgánicos" (Matías)

[5] "La idea del negocio fue que teníamos que desarrollar producción de arroz orgánico…sin olor a humo el arroz, porque se secaba con maderas…En otros países es con gas. En la Argentina, la madera en esos lugares es gratis porque hay bosques" (Matías)

Sofía and Matías represent just two examples of what is a diverse range of agricultural and social experiences that comprise the alternative food movement in Argentina. In 2020 – as I write this – the contemporary alternative food movement is entering a new phase. For example, we see certified organics in corporate supermarkets around the globe, when fifty years ago "organic" signaled something radical. COVID-19 made the fragility of our global industrial food system painfully clear, and movement calls for local, democratic control over food systems ("food sovereignty") are gaining momentum. But scholarship and mainstream discourse about alternative food does not always reflect the reality that the alternative food movement is anything but a unified group of people who agree about the future food economy they want to build, or how to get there.

In this dissertation, I seek to shed light on four common blind spots about alternative food, which my research shows are critical to address for alternative agriculture to expand beyond a niche and fulfill its potential to tackle global social and environmental problems:

First, scholars and practitioners usually depict the alternative food movement as either a unified group or as a bifurcated split between corporate global certified organics and the radical rest (e.g. local organic, regenerative, agroecological). In contrast, I ethnographically trace alternative food supply chains to reveal six subgroups of alternative farmers in Argentina. These subgroups had distinct social networks, movement priorities, strategies for change, and economic capacities to enact the change they wanted to see. While some of these differences were particular to Argentina (and therefore help an international audience imagine alternatives), most were structural to our shared global industrial food system, global certified organic food system, and their relationship to local struggles for alternatives.

Second, even when scholars and practitioners do differentiate a subgroup of alternative farmers, they rarely discuss how that alterative food supply chain interacts with other food supply chains. This is critical because globally traded certified organic and industrial food exists in stores in many places around the world, competing with each other and with local agroecological food at multiple points along the supply chain. In other words, the development trajectory of one supply chain is influenced by those of others. And in this vein, when studies do focus on local agriculture (whether or not they call it "agroecology"), they seldom consider how local food systems are influenced by the transnational flow of goods and discourses that affect those local food supply chains. In contrast, I compare local and global alternative food supply chains that originate in the same place, capturing relationships between them.

Third, scholars and practitioners often discuss alternative farmers either as independent businesses seeking economic return (common among agricultural economists) or as actors in a social movement (typical of sociologists, anthropologists, and geographers), rather than both at the same time. Furthermore, scholars who do the important work of uniting the economic and social movement sides of alternative agriculture too often depict certain alternative farmers as purely economically driven (usually organics) and others as purely values-driven (often agroecology). In contrast, I follow Friedmann (1978: 549), who demonstrated how many farmers embody a mix of capitalist market and contrasting family economy logics, selling into capitalist food commodity chains while having "different bases for continued viability or failure" than profit alone. I take as a starting point that all alternative farmers embody a mix of economic interests – as businesses in capitalism – and social or environmental values – as "alternative" farms (Hinrichs 2000). I offer two models ("the alternative agriculture house" (chapter 3) and "social mycorrhiza" (chapter 4)) that explain key strategies for restructuring the political

economy of alternative agriculture to align alternative farmers' economic viability with achieving movement goals. In doing so, these models also serve to help interpret the social and environmental impacts of alternative food, instead of relying on the confusing plethora of words that people use to sell you alternative food (e.g. organics, agroecology, local, biodynamic, family, regenerative, climate smart, natural, etc.)

Fourth, scholars and practitioners tend to talk about the alternative food economy in an identity-blind way or bring up identity only when referring to marginalized groups in agriculture (e.g. farmers of color, women, or queer farmers). In contrast, my research shows how racial, gender, and sexual oppression and resistance are central forces in how alternative food social networks develop to comprise a variegated social movement (blind spot number one above) and in the economic development trajectories of different alternative food supply chains (blind spot number three). Rather than presenting identity-based factors as a niche topic or in relation to specific identity-based groups (an important project in its own right), I highlight examples throughout to demonstrate that agricultural economics and agro-environmental change cannot be understood without attention to the identity-based social forces that permeate them.

METHODS

This project is an ethnography of alternative food systems that originate on farms in one particular region of Argentina. How do I manage to connect the micro processes that I collect data on in observations and interviews to macro processes related to the economics of alternative food systems? In other words, how do I connect the case to theory? To do this, I draw from Burawoy's (2009) extended case method in the following four ways. First, I extend myself as the observer into the lives of the participants by using participatory methods, described below.

Second, I extend observations over time and space by situating the cases in historical context and by tracing local and global flows of alternative food supply chains. Third, I extend micro-processes to macro-forces by connecting farmers' daily experiences to patterns of food economies in global capitalism, using existing literature. Fourth, I extend theory by starting with theories (below) that I selected that are closely related to my cases and using an iterative process of evaluating those theories and my data against each other.

However, I did not embark with the extended case method using a single case of "Argentinian alternative farmers." Rather, I aimed to compare types of Argentinian alternative farmers. I started this study by comparing two types: certified organic and agroecological. I chose certified organics because it is the most prominent type of alternative agriculture and Argentina is a top producer of organics. I chose agroecology because in Argentina, that is the word that most non-certified organic alternative farmers use to describe themselves. My ethnographic comparison of these two types of alternative food systems is best described by what McMichael (1990) calls "incorporated comparison." Rather than comparing two things using experimental logic that risks divorcing the cases from their context and relationships with each other, incorporated comparison encouraged me to see my two cases as stemming from one history in which they developed in relation to each other (Collins 2017: 15).

But how do I observe a food system? Food systems are made up of a web of often-intersecting food supply chains. I draw from commodity chain ethnography as a guide for how to observe global certified organic as well as local and regional organic and agroecological food supply chains. So rather than being an ethnography of a particular place, this is an ethnography of food supply chains, which move across space in ways that often defy – but are shaped by – political and geographic boundaries. One of the key methodological innovations of commodity

chain ethnography is in how it provides an alternative to taking the nation-state (or another politically defined area) as the unit of analysis, when the actual object of study (how commodities flow along chains) often defies political boundaries (Bair 2005). How do I enact this insight and not presuppose a politically defined area of study while also making a deep dive into the context of a particular place, which is particularly important for grasping the context of local agroecological and local organic food supply chains? To overcome this, I situate the commodity chain approach (Bair 2009; Collins 2005, 2014) within the metaphor of the foodshed (Kloppenburg, Hendrickson, and Stevenson 1996): a unit of analysis that draws on the idea of a watershed. More specifically, I adopt a metropolitan foodshed approach (Lengnick, Miller, and Martin 2015), which focuses on how food supply chains are organized to feed large urban populations. This approach is gaining traction as an important perspective on redesigning food supply chains specifically for climate mitigation and adaptation (a central socioecological problem I focus on in chapter three) (Lengnick, Miller, and Martin 2015).

Tracing food supply chains in the metropolitan foodshed of Buenos Aires city was the centerpiece of my sampling strategy. I started data collection by asking, where does alternative food show up in the city of Buenos Aires, and where does it come from? To the best of my knowledge, I visited every point of sale for alternative food in Buenos Aires city – most of them multiple times – for a total of 77 recorded hours, averaging about half an hour of actual observation time during each visit. In addition, I chose one point of sale to do in-depth observations, where I spent 136 hours, usually visiting twice each week for eight months. It was useful to spend a little time at many markets to get an appreciation of the breadth of experiences. At the same time, it was important to build relationships in a single place. While I learned a lot about this particular market, it does not show up in the text any more than the others. However,

earning trust with a smaller set of participants was critical for having extended informal conversations that shed light on the broader context of the local alternative food economy. At each point of sale, I took field notes on who I observed at the market, interactions between people, the type of food for sale, prices of individual items, discourses the market used to describe and sell food, and more. I had many informal conversations with vendors and purchased food to taste at home. I did the bulk of the observations at points of sale during my second visit in 2017, with revisits in 2019/2020. I interviewed someone from most of the markets who organized or ran it. I visited and interviewed only a few of the city's many health food stores, which sometimes sold a small selection of alternative food. I did not include in this study ways of purchasing alternative food that were unlikely to be able to be someone's only source for food, most notably the city's many options for *bolsones*, or bags of mixed vegetables similar to a CSA drop-off. While this project mainly focuses on farmers, devoting this significant amount of observation and interview time to the food supply chains they sold into was critical for distinguishing subgroups of farmers by their economic and social networks (chapter two). These data gave me a much deeper sense of who was who, who valued what, and farmers' challenges and opportunities beyond the farm gate. Importantly, it enabled me to compare how different types of alternative food look and are advertised at points of sale with the social and ecological conditions of how it is actually grown on the farm.

Once I had a grasp of the alternative food points of sale in the metropolitan core, I interviewed farmers who sold food there. Haven taken an in-depth look at the points of sale allowed me to sample farmers according to the type of food supply chain they sold into and ensure that I was gathering a wide variety of alternative farmer experiences. Whenever possible, I followed these farmers from the city to their farm in the country (or metropolitan fringe) to

conduct participatory interviews there (described below). This approach worked for finding a full variety of agroecological farmers as well as local organic farmers. However, by definition, this sampling strategy could not work for one very prominent type of alternative farmer: export organic. So, for this group, I had a separate sampling plan. Fortunately, there was a publicly available list of certified organic farms in Argentina. I narrowed the list to farmers who were no more distant from the metropolitan core than the agroecological farmers I visited, which covered mostly Buenos Aires Province and the nearer portions of the adjacent provinces. I paired this list with a quantitative report of the types of certified organic food grown in each province (SENASA 2017), to ensure my sample of export organic farmers covered the primary types of food exported from the Buenos Aires metropolitan foodshed. While these farmers only sometimes sold food in the Buenos Aires metropolitan foodshed, they grew food there, competing and interacting with local organic and agroecological farmers for farmland, government resources, etc.

It was important to have a clear analytical vision about what I was trying to gain from each site and why because in multi-sited and comparative supply chain research you cannot go into depth in any one site, nor is that the objective (Freidberg 2001: 362). For the farms, I set off to compare organics and agroecology, and sampled according to farms' level of capitalization. I used rough indicators of low, medium, and high, based on things like farm size and infrastructure (details about which I gleaned during my ethnographic observations and conversations at markets). While this was a rough measure, the farms ranged so much in how capitalized they were that it was sufficient for gathering a wide variety of farm scales for each of the two broader categories. I found no certified organic farms that were even roughly equivalent to the low-capitalized agroecological farms, which is a finding in itself. Yet, my method was not quite as

deductive as this sampling strategy and my use of extended case method suggests. Rather, my sampling strategy reflected Orne's (2017: 245) iterative deductive/inductive process by constantly questioning my categories of analysis as I gathered and learned from new data. This is how I developed the six subgroups of alternative farmers that I refer to throughout the chapters. I started with a rough sense that there were clearly distinct agroecological and organic farms, and that while most organic farms were for export, I also wanted to investigate the local organic farms to see if they offered a "negative case" for Argentinian organics. But it was only through my interviews (facilitated by my sampling by level of capitalization) that I discovered such distinct subgroups of agroecological farmers. Pairing those farm-level characteristics with how I traced their food supply chains backwards through the metropolitan foodshed revealed four distinct subgroups. As these subgroups emerged, I then sought more interviews with farmers of types that were not yet well represented in my sample.

While I focus on farmers in the following chapters, I was only able to come to understand the context I discuss them in by also conducting interviews along the food supply chain. I interviewed organizers of points of sale, described above, as well as several mid-chain participants, such as people who made a business of aggregating and distributing alternative food between farm and point of sale. I selected key informants to gather insights from important groups that affect alternative food supply chains. These included organizations (e.g. local agroecological organization representatives and the President of MAPO, the Argentinian organic growers' association) and government officials (e.g. SENASA, which is in charge of federal food safety laws, and INTA, which is in charge of national agricultural research and extension work, as well as several other more specific branches of government pertinent to agroecological projects). While I only included data that I collected relevant to the Buenos Aires metropolitan

foodshed, I also conducted several extended ethnographic visits related to alternative food supply chains in other parts of the country (most notably related to the *ferias francas* in the northeast and a biodynamic farm in the west). These visits helped situate my cases in context and to get a glimpse of alternative food supply chain development trajectories that are more distant to a large metropolitan core. In total, I formally interviewed 50 people, 16 directly related to certified organics, 21 directly related to agroecology, and 13 other key informants. In addition, I collected 213 hours of observation and informal conversations that I took field notes on. Many more hours traveling through the metropolitan foodshed, attending events, and discussing politics with friends during 17 months over three trips between 2015 and 2020 gave me a richer context for understanding what I was learning in my observations and interviews.

For key informants, my interview process was a standard, semi-structured interview. I adapted my interview questions slightly for each key informant when I had questions specific to something related to their position. I asked all key informants questions about their organization's history, successes and challenges, position in the food supply chain, definitions of the alternative food words they used to describe themselves, perspectives on other ways of doing alternative food, feelings about organic certification, relationships with other groups, perspectives on the changing national governments, and personal history and connection to this work. I asked farmers these same questions, plus a series of questions related to the biophysical, economic, and social organization of their farms. When possible, I conducted farmer interviews on the farm, which offered opportunities to observe farm practices in relation to what I was hearing in the interviews. For these interviews, I dressed in my normal farm workwear (I farm myself), and farmers occasionally accepted my offer to help them on the farm with whatever task they were doing that day. I conducted interviews in Spanish. I gave interviewees the option for

me to use their real name or a pseudonym (for them as well as their farm). I use pseudonyms throughout, except when the person both offered consent to use real names and was also necessarily easily identifiable (such as the president of MAPO).

A paid native Spanish speaker transcribed (not translated) the interviews. I coded transcriptions using NVIVO qualitative data analysis software. I coded for examples related to food security and sovereignty; production practices related to toxicity, biodiversity loss, and climate change (e.g. fertility, monocropping/diversification, and tillage practices); fictitious commodities (land, labor, credit, knowledge); perspectives on different types of alternative agriculture; identities (race, ethnicity, gender, sexuality, class); relationships (with institutions, governments, organizations, markets, farmers, neighbors, consumers, and family); and food supply chain characteristics. In these areas, I coded for challenges and strategies for overcoming them. I derived these coding categories based on existing theory.

THEORY

Using the extended case method, I take the following theories as a starting point. In chapters two through four, I use Hinrichs' (2000) continuum designed to compare alternative food supply chains in terms of how embedded they are in market or social relations. In chapter three, I employ Morris and Kirwan's (2011) adaptation of Hinrich's (2000) continuum: market to ecological embeddedness. These two chapters focus on farmers as producers of social and ecological outcomes. In chapter four, I focus on what farmers need to consume to be producers of social and ecological outcomes. There, I take as a starting point that the key resources farmers need to consume for economic viability are land, labor, credit, and knowledge (Leslie 2019). These key resources are also what Polanyi (2001 [1944]) and Jessop (2007) call "fictitious

commodities," which provides the theoretical foundation for connecting farmer's experiences accessing these tangible farm resources with theory about the effects of trading those resources as commodities on markets in global capitalism. Lastly, in all three empirical chapters, I start with the food justice literature's observations that racial (Leslie and White 2018), gender (Leslie, Wypler, and Bell 2019), and sexual (Leslie 2017) oppression and resistance are central to how alternative food supply chains are organized.

Taken together, these existing theories suggest that all types of alternative farms navigate tensions between their economic interests and particular social and environmental values, and their capacity for action is rooted in economic, racial, gender, and sexual relations. Using data from my cases, I extend this theoretical foundation;

- in chapter two by following the economic and social networks of alternative farmers to reveal patterns in how their social histories, agricultural practices, and relationships with the market and the state correlate with their farm's social outcomes,
- in chapter three by examining how the legal and social governance of alternative food supply chains systematically affect their environmental outcomes (illustrated by "the alternative agriculture house"), and
- in chapter four by revealing how the social relational infrastructure of agroecological economies offers a beyond-market route for accessing the key resources needed for realizing movement values, in a context of economic and social oppression (shown by "social mycorrhiza").

These theoretical extensions have implications for building alternative food economies that prioritize social justice and ecological sustainability.

I made these theoretical extensions through an incorporated comparison (McMichael 1990) of two conceptions of alternative agriculture: certified organics and agroecology. Comparing these two with attention to their shared history and current relationships helped me see that these two types of alternative food systems were not actually two unified groups, but each a collection of subgroups: export and local organics, and biodynamic, extensive, solidarity, and unionized agroecology (chapter two). While these six subgroups occupied different social and ecological spaces, incorporated comparison helped me show how their histories and development trajectories are interrelated in what I call "the alternative agriculture house" (chapter three).

I observed these different alternative agriculture pathways by following their food supply chains. Conducting a commodity chain ethnography helped me move through different levels of analysis (important for studying dispersed production networks that are characteristic of contemporary capitalism) and helped me compare the organization and division of labor in different approaches to alternative food supply chains (Bair 2009). This method allowed for studying global processes while staying empirically grounded in local cases. Responding to Bair's (2009) call for more research on larger institutions and structures to understand dynamics of contemporary capitalism, I consider how the legal structure of certified organics and the social structure of agroecology shape the governance of different types of alternative food supply chains in the current global economy (chapter three).

However, this study differs from contemporary mainstream global commodity chain (GCC) (or "global value chain" (GVC)) approaches. Collins (2014) argues that scholars influenced by (or in) the fields of business and economics (characterized by the GVC approach) "hijacked" the study of commodity chains by neglecting history and context, pushing the chain

approach away from making structural and justice-oriented critiques. The original GCC approach had more radical political implications because it upended conventional trade theory's focus on comparative advantage by instead showing how trade is organized by powerful actors (Bair 2009). Refusing to let the commodity chain literature be defined by the GVC approach, Collins (2014) argues that the value of commodity chain analysis is in its ability to (1) show how capitalist firms adapt production to local conditions and how they take advantage of local inequalities to cut the cost of labor, (2) provide a model of global capitalist projects that accounts for their engagement with local economies and cultures, and (3) focus on questions of diversity within power structures, including resistance to capitalist projects.

Collins (2014) extended the GCC approach's capacity for critique even further through her feminist commodity chain analysis (FCC), an approach I follow in this study. Drawing from Marx's understanding of commodities as containers of hidden social relations, Collins' FCC approach cracks open the "black boxes" of commodities to reveal the social and environmental relations embedded in them. This method allows me to;

1. show where global commodity chains "touch down" and interact with local social relations;
2. make visible the often-hidden labor and social reproduction of labor of the institution of the family farm (in both agroecological and organic agriculture);
3. "[reveal] the subsidy from nature" that capitalist food systems rely on (Collins 2014: 35), and;
4. trace global connections that are not just economic, but also of ideas, knowledge, and taste (which reveals agency where it is not normally highlighted, such as by women agroecological farmers in the Global South).

An FCC approach takes seriously the local processes that make global connections, reveals hidden social relations that drive global capitalism, centers "externalities," and by thinking about value beyond economics, offers new measures of value. In short, FCC resists the direction that the GVC approach took commodity chain analysis and offers a way of critiquing global processes that cause inequalities. Feminist commodity chain ethnography is my methodological avenue for extending theories of food justice because it draws attention to the gendered, sexualized, and racialized organization of food supply chains.

Ethnography of economic structures like food supply chains is further important because unlike many other methods of studying the economy, it does not assume that the current capitalist organization of the global economy is "natural" or governed by unchanging forces like an "invisible hand" divorced from human struggles for power. Contemporary capitalism – what many call neoliberalism or what Burawoy (2013) calls "third-wave marketization" – is a root cause of the mainstream food system's social and environmental abuses (Holt-Giménez 2017). I chose to do an ethnography of organic and agroecological food supply chains to search for alternative ways of building food economies that are healthier for people and the environment. As (Burawoy 2013: 535) puts it,

> [W]e have to search for the most effective ramparts to reverse third-wave marketization. In that search the ethnographer plays a critical role, digging around like an archaeologist for the nuclei of contestation, for embryonic institutions struggling to make their appearance against the tsunami. We then have to comprehend the conditions for their expansion and dissemination. Ethnography is on the front-line in the battle to save society from market fundamentalism.

What tools does the ethnographer have to observe alternative food economies – or what Burawoy (2013: 535) calls "embryonic institutions" – when the case and the ethnographer are so deeply

steeped in capitalist material realities and ideologies? How can I make observations of something in the present to inform how we choose to build future food economies? To do so, I use two primary strategies:

First, I visited my field site multiple times. Burawoy (2003: 654) reflected on a critical mistake they made when conducting a global ethnography of contemporary capitalism by assuming that the "external forces" of the market on the object of study were static, rather than ever-changing social processes. Three ethnographic revisits between 2015 and 2020 gave me a glimpse of how my cases evolved along with the changing "external" economic and political forces in Argentina. While I still only captured a narrow snapshot of history, it was a particularly useful period to observe in the Argentinian context because the national government went back and forth between the Macri administration (who pleased foreign capitalist interests) and the Peronist Kirchner/Fernández administrations (who did not). When I arrived in 2015, after twelve years of Nestor and Cristina Kirchner, the Macri administration began wiping out social and agricultural programs that many of the small-scale farmers I studied relied on. And thanks to long-standing forces beyond the Macri administration – but accelerated by its neoliberal austerity program – the economy took a nosedive. When I left Argentina in 2020, Argentinians had voted Cristina back in as Vice President, with the ticket led by Alberto Fernández, who had an influential role in recovering the economy from Argentina's last horrific economic crash in 2001. Seeing many of the same people over this period helped me to observe how Argentina's alternative food economy was in flux. When we can see how an economy has changed in the past, it is easier to imagine that it can be different in the future. Put simply, I made observations across time.

Second, I left my home context to study capitalist economic dynamics somewhere else. While capitalism is global, it exists in different ways in different places, because the economy is constantly being remade by changing social and environmental conditions. I had previously studied alternative food economies in New England, U.S., where I grew up (Leslie 2017; 2019; Crowley et al. 2019). As Bourdieu (1979) pointed out, it is easy to take for granted the role of global capitalist dynamics when observing them in your home country because they are what seem "normal," so it is helpful for an ethnographer to go to a foreign country to observe a different version of capitalism's "normal" (Wacquant 2004). In other words, I made observations across space.

These theoretical points of departure – guided by extended case method (Burawoy 2009), incorporated comparison (McMichael 1990), and feminist commodity chain ethnography (Collins 2014) – serve as the foundation to three linked empirical papers. Chapters two, three, and four focus on alternative farm subgroups' social outcomes, ecological outcomes, and access to key resources for economic viability (necessary for producing social and ecological outcomes), respectively.

CHAPTER OUTLINE

The alternative agriculture movement is often depicted as a singular alternative to conventional agriculture or bifurcated between corporate organics and radical agroecology. However, neither of these common portrayals reflect how much alternative farmers vary in their movement goals and their business interests. In chapter two, I distinguish subgroups of alternative farmers that exist beyond the organics/agroecology dualism and compare their food security-related social outcomes. I identify subgroups by ethnographically tracing alternative farmers' social networks

and the food supply chains they sell into. I find six subgroups with clear disparities in their level of social and economic privilege, which correlate with differences in the food supply chain they sold into, the crops they grew, and their access to state support. Still, all farmers embodied a mix of market interests and movement values. I compare these subgroups according to the way each defined and valued food security, finding that the farmers who most prioritized equity were the ones with the least power to expand food supply chains that enact it. This research suggests that for alternative food chains to provide food security to the most vulnerable – including those who actually grow it – alternative food movements must address the social inequalities they reproduce and support subgroups that prioritize a food sovereignty – rather than a corporate global trade – approach to food insecurity.

Alternative agriculture is posed to address three existential ecological crises exacerbated by conventional agriculture: toxic exposures, biodiversity loss, and climate change. However, alternative farmers vary widely in their use of practices that address these crises, and the political economy of alternative agriculture systematically affects progress toward particular goals. In chapter three, I compare how six subgroups of Argentinian alternative farmers vary in their agricultural practices, perspectives about each other, and relative power to realize their ecological goals. I find that the most economically and socially powerful subgroups usually grew certified organics and prioritized eliminating toxics. In contrast, the most marginalized subgroups mainly used agroecological practices that addressed biodiversity and the climate. I argue (1) identity-based social and economic inequalities within alternative agriculture mark the divisions between subgroups and limit their capacity to implement ecologically friendly practices, (2) certified organics' focus on eliminating toxics for individual health dominates alternative agriculture discourse, exacerbating internal divisions and stunting collective action on

biodiversity and the climate, and (3) patterns in individual farmers' focus on different ecological goals are structural to the political economy of alternative agriculture. I conclude by offering a framework – "the alternative agriculture house" – that explains how the political economy of alternative agriculture prioritizes certain ecological goals over others. By illustrating the relationship between certified organics' minimum standard approach to food supply chain governance (the "floor") and agroecology's continual improvement approach (the "roof"), the alternative agriculture house highlights leverage points for social movement and policy interventions.

For the alternative agriculture movement to realize its social and environmental goals, alternative farms must be economically viable. Farm viability hinges on access to land, labor, credit, and knowledge, yet social inequalities restrict access to these key resources. In chapter four, I compare how six subgroups of Argentinian alternative farmers vary in their strategies for accessing these four key resources they need for farm viability. I find that farmers with the narrowest social and environmental goals were also the most economically and socially privileged and most likely to access key resources through market-embedded means. In contrast, the farmers with the broadest social and environmental goals tended to be the most economically and socially marginalized and had the least economic means to access key resources necessary for enacting those goals. Instead, many of these agroecological farmers accessed key resources through trust-based social ties as a resistance strategy to their experiences of marginalization. I conclude by offering a framework – "social mycorrhiza" – that describes the social relational infrastructure agroecological farmers often relied on to access key resources for farm viability. Social mycorrhiza uses the ecological concept of mycorrhiza to visualize social networks where actors with simultaneous market interests and movement values access resources through social

relational ties. It highlights cooptation – when economic interests are likely to prevail over social values – and burnout – when economic viability unsustainably takes a back seat to movement priorities. Social mycorrhiza describes the social relational infrastructure of agroecological economies.

CONCLUSION

Taken together, these chapters highlight structural factors that impeded justice and sustainability in alternative food economies. At the same time, they highlight resistance strategies and agency where we might not always expect to find them. These challenges and opportunities matter for addressing the global social and ecological problems exacerbated by industrial agriculture that I consider in this dissertation: food security, toxic exposures, biodiversity loss, and climate change. But as I will show, certain alternative agriculture pathways address particular issues more than others, and none of them will be sufficient without major changes in the broader food economy. In chapter five, I conclude by discussing the implications of these findings for broader structural economic change for justice and sustainability, as part of what some in Argentina, the U.S., and elsewhere are calling a global Green New Deal (Patel and Goodman 2019; Svampa and Viale 2020).

Chapter 2 – "Organic is capitalist and agroecology is socialist": Alternative farmers' approaches to food insecurity beyond dualisms

INTRODUCTION

The alternative agriculture movement offers consumers hope that their purchasing decisions can contribute to reversing industrial agriculture's rampant social and environmental harms. Alternative farmers vary widely in their social and environmental practices, yet scholarship and popular press on the movement tends to homogenize this diversity by portraying alternative farmers as a single group (e.g. Aistara 2018; Beus and Dunlap 1990) or presenting a dualistic divide between "big organics" and the local or radical rest (e.g. Adams and Salois 2010). Adding to consumers' confusion about what they are buying into is the situation that farmers are simultaneously part of a movement (in the sense that they employ "alternative" practices) while also being businesses that often struggle to be economically viable (Hinrichs 2000). Furthermore, selling social and environmental values can be effective marketing, incentivizing cooptation of movement discourse (Johnston, Biro, and MacKendrick 2009). In this chapter, I distinguish subgroups of alternative farmers and compare who makes decisions in each group about how food is grown and who accesses it, distilling different alternative agriculture approaches to food insecurity.

The leading type of alternative agriculture in terms of market share is certified organics, a $100 billion global industry growing at a consistently high rate (IFOAM 2020). The contemporary organic movement gained momentum during and after the 1960s as a social movement response to the environmental and health harms of industrial agriculture. The passage of the 1990 U.S. Organic Foods Production Act marked a turning point in the movement, establishing a certification system that regulates the term "organic." Many in the early organic

movement rejected the growing corporate influence over the organic standards (Raynolds 2004), which now allow many practices they would not have considered "organic," such as large-scale monocultures and global trade (Guthman 2014 [2004]). The contemporary organic movement has long since been international, exemplified by the emergence of the International Federation of Organic Agriculture Movements (IFOAM) – now "Organics International" – in 1972. Argentina has the second-most acreage in certified organic production globally (Willer and Lernoud 2017). Argentina has much to offer the world in learning how to expand a type of agriculture that significantly reduces toxic exposures to individuals and the environment. However, only a handful (but growing number) of Argentinians get to enjoy the organic food grown in their country; 98.7% of Argentinian organics are exported, mostly to the European Union and the United States (SENASA 2017).

Another globally prominent alternative agriculture framework is agroecology, advocated for by the United Nations Human Rights Council Special Rapporteur on the Right to Food as the most effective for food security, climate mitigation and adaptation, and biodiversity (De Schutter 2010). Agroecology, or the "ecology of the food system," emerged in its current form in the 1970s as a science, practice, and social movement explicitly opposed to the social and ecological devastation that industrial agriculture brought to Latin America during the Green Revolution (Gliessman 2013: 20). It began as a grassroots coalition of small-scale farmers, university researchers, and NGOs and is most well known as the type of food system called for by the international peasant movement La Vía Campesina (Holt-Giménez and Altieri 2013). In contrast to organics' approach of a legally enforceable minimum standard, agroecology offers a set of ecological and social principles that farmers work toward in their own context, often through a mix of the latest science, local and Indigenous knowledges, and farmer-to-farmer exchanges

(Rosset and Torres 2016). While in places like the U.S. agroecology is primarily understood as an ecological approach to farming to the neglect of its social origins and principles, many places in Latin America and elsewhere continue to understand agroecology as both an ecological practice and a social movement (Wezel et al. 2009). The social side of agroecology is usually framed as food sovereignty, defined in a diverse international forum as "The right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems" (Declaration of Nyéléni 2007, as cited in Wittman 2011: 88). In contrast to the U.S., where farmers who use agroecological practices call themselves a plethora of different things (e.g. local organic, beyond organic, regenerative), Argentinian farmers display the word agroecology on their products. Argentina is also home to robust agroecological social movements (e.g. Feito 2013; Leslie 2017a; Sarandón and Marasas 2017). This context makes Argentina a valuable place to highlight distinctions between types of alternative farmers that may also exist elsewhere. These differences are perhaps more visible in Argentina because of how the alternative agriculture movement is discursively bifurcated by the organic export industry and the widespread use of agroecology as an alternative framework.

While most Argentinian alternative farmers use the words "organic" or "agroecological" to describe themselves, there are subgroups with distinct priorities and power to realize them. I ask, what discernable subgroups of alternative farmers exist beyond the organics/agroecology dualism, based on their economic and social networks? For each subgroup, who holds the power to decide which alternative food supply chain the farm sells into? And what are the food security-related social outcomes associated with each alternative food supply chain? I address

these questions by ethnographically tracing their social networks (the other farmers and groups they interact with) and their economic networks (the food supply chains they participate in).

Despite encountering dualistic portrayals like "organic is capitalist and agroecology [is] socialist,"[6] I find two subgroups of organics (export and local[7]) and four subgroups of agroecology (solidarity, unionized, extensive, and biodynamic). Farmers in each group came from distinct social backgrounds and had only limited interactions across sectors. The organic industry had a high cost of entry, and organic farmers usually had family or other prior wealth to get started. They did not critique markets as a vehicle for delivering toxin-free food security, and instead focused on expanding the export and local markets and educating consumers to buy more organic food. Like the organic certification system, organic farmers overwhelmingly did not prioritize just labor practices necessary for workers who grew the food to be able to afford to eat it. Solidarity and unionized agroecological farmers came from economically poor backgrounds, and while they had different strategies and networks, placed the most emphasis on just labor practices. They explicitly critiqued neoliberal capitalist markets as a way of achieving food security, instead believing that food security can only be achieved through food sovereignty. Biodynamic and extensive agroecological farmers tended to come from wealthier backgrounds, and while they did not make such a systemic critique of capitalist food or labor practices, they did prioritize food security-related practices for their particular social networks.

I argue that these six alternative agriculture subgroups' food security strategies exist along a continuum from market-embedded corporate global trade to socially embedded local

[6] "'los orgánicos son capitalistas y los agroecológicos somos socialistas'" (Cereales Orgánicos)

[7] For the purposes of this chapter, I define local organics as certified producers who sell to the domestic, rather than the export organic market. More specifically, these farmers sell into the Buenos Aires metropolitan foodshed (Lengnick, Miller, and Martin 2015), my geographical area of focus.

food sovereignty. All subgroups embodied a mix of market interests and movement values, but when compared according to the way each defined and valued food security, the farmers who most prioritized equity were the ones with the least power to enact it. These different approaches correlated with farmers' own socioeconomic position and privileges, participation in particular food supply chains, and relationship with the state. For equitable food security to become a reality for all – including those who actually grow alternative food – this research supports the importance of adopting food sovereignty as a guiding principle. This does not mean rejecting markets outright as means of exchanging food, but it does mean changing power relations along the food supply chain to prioritize the social principle of food sovereignty rather than the market-driven priority of economic extraction and concentration.

LITERATURE REVIEW

Here, I first summarize how scholars and practitioners tend to homogenize diverse groups of alternative farmers according to discourse rather than practices, contributing to an internal feud in the movement between supposedly market-driven organics and socioecologically-driven agroecology. I introduce Hinrichs (2000) continuum of market to social embeddedness, which reveals how all alternative farmers' act with a mix of market interests (as businesses) and efforts to achieve socioecological goals (as part of a movement, by virtue of using alternative practices). Despite this internal mix of roles, Hinrichs reveals how there are still discernable differences between subgroups of alternative farmers that likely have a correlation with the food supply chains they sell into and the relative power and privilege of each food supply chain's participants. Second, I put Hinrich's continuum in conversation with organic and agroecological approaches to food security to build a continuum from market-embedded corporate global trade

to socially embedded food sovereignty approaches to food security. Third, I use this continuum to interpret existing studies of alternative agriculture in Argentina and their approaches to food security.

Distinguishing subgroups of alternative farmers

While scholars have done important work distinguishing alternative agriculture from conventional industrial agriculture, many tend to treat alternative farmers as a single group (e.g. Aistara 2018; Beus and Dunlap 1990). Contributing to this issue is the problem that alternative agriculture scholarship is U.S.-centric, and the U.S. does not have a consistent, widely used discourse to distinguish alternative farmers who have goals beyond the organic certification standards (instead using a mix of terms like regenerative, beyond-organic, climate smart, local, etc.). Much of the rest of the world uses the term "agroecology" to describe alternative farmers who prioritize social and ecological goals but who do not necessarily seek organic certification. However, some U.S. governments, universities, and NGOs are coopting agroecology by embracing only its ecological practices while leaving its social focus aside (Holt-Giménez and Altieri 2013).

Whether or not scholars use the term "agroecology," scholarship often presents a feud between "big organics" and the rest of alternative farmers (e.g. Adams and Salois 2010). The particular codification of the organic standards – and corporate agribusiness' influence over them (Jaffee and Howard 2010) – did allow for certified organic food supply chains to develop in a way that is structurally similar to industrial agriculture (Guthman 2014 [2004]). This market-embedded approach permeated many certified organic spaces, so that "IFOAM, like many national organic groups, embodies sharp contradictions between its original movement-oriented

and more recent market-oriented organic norms and practices" (Raynolds 2004: 729). Guthman (2014 [2004]) demonstrates how the organic certification system was designed in such a way that facilitated the entry of market-driven corporations and industrial farmers into the organic sector to the detriment of organic farmers who use agroecological practices. Gershuny (2017) themself was one of those ("agroecological") movement-embedded organic farmers who helped write the original USDA organic standards, and painstakingly details the vitriol they and others like them have received by movement-driven farmers for "selling out" to big organics. There are undoubtedly heated differences, but Gershuny's story underscores how in practice there are more than the commonly presented two camps of sell-out organics and radical agroecology.

Holt-Giménez and Wang (2011) offer a step beyond the dualistic portrayal of alternative farmers by presenting a continuum from corporate-driven neoliberal and reformist organics to movement-driven progressive and radical agroecology. This model importantly highlights how differences in racial and class privileges and oppression are correlated to these sectors of alternative agriculture. While this model distinguishes subgroups of alternative farmers on a market to movement-embedded continuum, it leaves little room for theorizing how individual alternative farmers may experience a mix of market and movement-driven goals in their daily practice.

Capturing this tension, Hinrichs (2000) offers a continuum that illustrates how all alternative farmers, as simultaneous businesses and movement participants act according to a mix of marketness and instrumentalism to social embeddedness. And when we realize that a degree of marketness and instrumentalism necessarily pervades all alternative farms, Hinrichs (2000: 301) points out that "marketness and instrumentalism are not necessarily morally negative. They should be assessed based on the structural positions, relative resources and

intentions of actors in such markets." This perspective highlights the importance of tracing patterns between the food supply chains that farmers participate in and those farmers' relative socioeconomic privileges and core goals. Key to Hinrichs' argument is that because of the structural mix of marketness and social embeddedness, participants' power and privilege heavily affects the transformative potential of different subgroups of alternative farmers.

While all farmers embody a mix of market and social embeddedness, Hinrichs (2000) still finds that the points of sale that they participate in are related to which farmers are likely to pursue more instrumental or socially embedded goals. This points to the usefulness of characterizing subgroups of alternative farmers according to the type of food supply chain they participate in. Moving toward a more socially embedded food supply chain, Talbot (2004) would argue, demands changing the power relations in how each point of the food supply chain is governed. A socially embedded chain, then, would demand that those in power at each point in the chain make decisions that prioritize a social – rather than purely market – goal. A key component of access to decision making power along the food supply chain is food supply chain actors' relationships with the state (Talbot 2004). Furthermore, because food supply chains are intertwined, it is important not to conceptualize them as independent units. Rather, comparing types of food supply chains may reveal relative differences in market and socially embedded goals in the context of the broader food economy.

Organic and agroecological approaches to food security

The Food and Agriculture Organization (FAO) of the United Nations was founded in 1945 with the purpose of combating hunger. Jarosz (2009) argues that since its founding, the FAO has had internal tensions between two main discourses about food security. The first is that "increased

productivity, economic development, and integration into the world-economy through trade will address world hunger" (Jarosz 2009: 55). In other words, in this view food security is determined by the market because it is defined by the ability to buy food on the global industrial food market. The second discourse centers on food as a right and a collective, moral responsibility. Focusing on the right to food may call for diversified, self-sufficient, local and regional food systems that are fundamentally at odds with the first discourse's vision of a highly corporate global food system. According to Jarosz (2009), the FAO has oscillated between these two discourses throughout its history. When the FAO emphasized the right to food over the global corporate trade discourse, the U.S. intervened to ensure the FAO Director General would instead support Green Revolution technologies and neoliberal policies. These competing approaches to food security continue in the FAO today, with some initiatives promoting agroecology and a human rights approach, while the organization simultaneously continues "the capitalist accumulation objectives and foreign policy goals of the United States" (Jarosz 2009: 55). The current industrial food system leaves 750 million people severely food insecure (FAO et al. 2020: xvi), while overproducing in terms of calories (Ramankutty et al. 2018). The problem of malnutrition is not that farmers do not produce enough, but that so many consumers do not have the means to purchase it on markets. But as these debates in the FAO highlight, food security is not just about being able to pay for what the current industrial food system produces, but also involves questions about who holds the power to decide what food supply chains look like, affecting their broader social and environmental outcomes.

The certified organic movement itself has been split between these market and human rights approaches to food security. Many of the early founders of certified organics had a mission similar to the latter conception of food security, emphasizing local food systems and conceiving

of organics not only as a production system, but an entire way of life. At the same time, the particular codification of the organic standards – and corporate agribusiness' influence over them (Jaffee and Howard 2010) – allowed certified organics to develop in a way that is structurally similar to industrial agriculture (Guthman 2014 [2004]). The result was a certification system with little focus on social concerns. The organic standards contain no labor provisions (Pittman et al. 2004), reflecting U.S. agriculture's exemption from even minimal labor laws that are standard in most other industries (Schneider 2009). The result is that many of the people who actually grow organic food cannot afford to eat it. Thus, many certified organic actors follow the corporate global trade approach to food security, where big decisions about food supply chains are made by owners of agrifood capital who usually have no social ties to the communities where it is consumed or connection to those cultures. Local organic supply chains complicate this supposed synchronicity between certified organics and the corporate global trade approach. However, "local" is a politically flexible framework (Winter 2003), so that local organic supply chains may be socially embedded or reproduce local social inequalities; we must be careful not to "[conflate] spatial relations with social relations" (Hinrichs 2000: 301). Any particular local food supply chain may be more market or socially embedded, depending on the power relations that organize the chain.

Many agroecologists take a different approach to food security, called food sovereignty. A food sovereignty perspective believes that the problem of food security is one of poverty, and also about the power of communities to make decisions about the food supply chains they rely on. Food sovereignty is the right of local people to control the production, distribution, and consumption of food in a socially just and ecologically sustainable manner (Altieri and Toledo 2011: 588). This entails, for instance, small-scale farmers' rights to land access and local

communities enjoying their production and profits, rather than them being funneled out of the region. It also means using local inputs and eliminating reliance on fossil fuels and fossil fuel-derived inputs. Whereas the predominant industrial approach believes that food security can be achieved through corporate-controlled global trade, food sovereignty "opposes current international trade policy" because it does not believe food security can truly be achieved when communities and small-scale farmers do not have the power to make decisions about their own food systems (Lee 2013: 229). The international peasant movement La Vía Campesina first developed the food sovereignty framework as an explicit response to neoliberal policies of the 1970s that promoted corporate-controlled industrial agriculture (Desmarais 2007), in what some call the Second Green Revolution (McMichael 2009). Food sovereignty may be understood as the slice of the agroecology framework that is most concerned with social life. When – and only when – the social focus of food sovereignty stays married to agroecology, agroecology is fundamentally opposed to corporate control over food systems (Sevilla Guzmán and Woodgate 2013). As stated by the Nyéléni Forum for Food Sovereignty, "It offers a strategy to resist and dismantle the current corporate trade and food regime" (Declaration of Nyéléni 2007).

Figure 1 summarizes alternative agricultural approaches to food insecurity as existing on a continuum from market-embedded corporate global trade to socially embedded food sovereignty.

Figure 1: Food insecurity pillar

Argentinian alternative agriculture approaches to food security

Argentina, a country whose economy has long been structured to rely on agricultural exports to Europe and the U.S. (Barsky and Gelman 2012), made an early entry into certified organics. In 1996, Argentinian organics earned equivalency to European organics by their European counterparts, allowing Argentinian products to be sold as certified organic in Europe (IICA 2009: 17). This change spurred explosive growth in organic exports to Europe, as the emerging export industry was now able to capture a new price premium while leveraging its long history of experience with agricultural exports to Europe (IICA 2009). The U.S. is another important market for Argentinian organics but, interestingly, the U.S. organic standards are not equivalent to Argentinian/European organic standards, and so are not counted in Argentina's official statistics about its organic sector (except for those producers who comply with both Argentinian and U.S. organic standards) (SENASA 2017: 1). Organics sold into the domestic market account

for only 1-2% of organic food grown in Argentina, which since the 1990s has been sold in the most expensive types of points of sale: natural food stores, home delivery, and large corporate supermarkets like Carrefour and Disco (IICA 2009: 19). In 1998, under the Menem administration – known for promoting neoliberal policies – the national government established CAPOC, a state initiative "with the true intention of helping the business community of the organic sector in its efforts of effectively marketing their products domestically and with a greater emphasis on the international, with the purpose of accessing, expanding, and diversifying its exports" (IICA 2009: 28).[8] In 2002, the state established CACER, an entity that has – among other duties – the mission of promoting Argentinian organics internationally (IICA 2009). State support for exporting organics has remained relatively constant since, despite a political change with the Kirchner administrations from 2003-2015, a shift back to neoliberalism with the 2015-2019 Macri administration, and yet another return to Kirchnerist policies with the Fernández administration in 2019. In short, Argentinian certified organics are strongly defined by the corporate global trade approach to food security, which has received relatively ample and stable support across the main political parties, specifically for exporting.

The contemporary agroecology movement in Argentina is comprised of an array of different approaches – with a multitude of initiatives emerging since the late 1980s – but which have common roots as a reaction to the Green Revolution (Sarandón and Marasas 2017). These groups had various focuses on topics like creating appropriate technologies for small-scale production, preserving native seed varieties, creating routes for education and healthcare for

[8] "con la intención cierta de asistir a la comunidad empresarial del sector orgánico en sus esfuerzos por comercializar con eficacia sus productos en el plano nacional y con mayor énfasis en el internacional, con miras a acceder, ampliar y diversificar sus exportaciones" (IICA 2009: 28, translated by the author)

underserved communities, and establishing agroecological markets and supply chains (Sarandón and Marasas 2017). These initiatives were often led by women and Indigenous people utilizing agroecology and food sovereignty as a means of resisting oppression by building an alternative food economy more amendable to their social concerns (Papuccio de Vidal 2014; Sarandón and Marasas 2017). In contrast to these agroecological groups concerned with rural development and agroecology as a livelihood strategy (Cáceres 2005), "extensive" agroecologists were focused on developing large-scale mechanizable practices for transitioning commodity crops away from the agrochemicals of the Green Revolution model. Unlike for organics, state support for agroecology came mostly through rural development programs aimed at small-scale, "family" producers (Sarandón and Marasas 2017). A political opportunity for supporting programs like these expanded in 2003 with the arrival of the Kirchner administration, as the country was still struggling to recover from a devastating economic crash in 2001 (Sarandón and Marasas 2017: 98). Food sovereignty was a guiding principle for many of Argentina's agroecological entities, but because of the diversity of agroecological approaches in Argentina, agroecological subgroups may vary widely in their market to socially embedded takes on food security.

Because "agroecology" in Argentina represents an umbrella term for a much more diverse group of farmers than exist under certified organics, it is important to distinguish subgroups to be able to say much about agroecological farmers with any internal consistency. Patrouilleau et al. (2017) categorize Argentina's agroecological farms into three types: *producción orgánica, agroecología de la agricultura familiar,* and *agroecología extensiva.* The first, organic production, I separate from agroecology. As I have argued elsewhere (Bell et al. 2021; Leslie 2017b; 2019; Leslie, Wypler, and Bell 2019), Patrouilleau et al.'s (2017) second category – family farming – is not a very useful analytical category because farmers of all types,

scales, and priorities identify as “family farms” (75% of the world’s farmland is run by “family farms” (Lowder, Skoet, and Raney 2016). However, “family farming” does have somewhat of a more specific meaning in the Argentinian context, having been the name the Kirchner administration chose for a government office that worked for small-scale farmers, many of whom were agroecological. Below, I maintain the “family farming” category’s general focus on small-scale producers but split it into two types based on a divide I observed in the economic and social networks of small-scale agroecological farmers: those who sell into solidarity economy markets and those who are officially organized in a labor union. I maintain Patrouilleau et al.’s third category – extensive agroecology – which characterizes the rather distinct group of farmers who are applying agroecological principles on a large scale. Finally, I add biodynamic farmers as their own category because while their agricultural practices fall under the umbrella of agroecology, their social values and networks were distinct.

RESULTS

Ethnographically tracing alternative farmers’ economic and social networks revealed differences between alternative farmers that started with – but went deeper than – the organic/agroecology divide. The following six subgroups – export organics, local organics, solidarity agroecology, unionized agroecology, extensive agroecology, and biodynamic agroecology – varied in their market to socially embedded approaches to food security. These differences in approaches across the six groups correlated to differences in farmers’ socioeconomic position and privileges, participation in particular food supply chains, and relationship with the state. While I focus on the relative power of food supply chain governance at the point of production, in comparing

farmers I consider the food supply chains they sell into as indicators of who was able to access different types of alternative food.

Subgroups of alternative farmers: Socioeconomic networks and position

Export organics

Certified organics for export were by far the largest subgroup of Argentinian alternative farms in terms of overall production, land under cultivation, and monetary value of the industry. Organic farmers in Buenos Aires Province – the regional focus of this study – primarily grew grain (mainly wheat, corn, rice, and oats) and oilseed crops (mostly soy) (SENASA 2017: 9). The farm-level decision makers in this group often came from business, government, economics, agricultural engineering, or conventional agriculture backgrounds. They were typically farm managers or owners who usually did not do physical labor themselves.

Export organic farmers were networked with each other through MAPO (Movimiento Argentino para la Producción Orgánica – Argentinian Movement for Organic Production). MAPO is an NGO that functions similarly to an industry trade association. As one member put it, "I got into [MAPO] because the idea was to try to generate some benefit for the organic producers, because it's intensive in its use of labor, you see, to see if we could get a law or something that affects taxes to make the sector grow more."[9] The president of MAPO explained that it is "the only organization that brings together the entire Argentinian organic sector. It

[9] "yo me metí también porque la idea sería tratar de generar algún beneficio para los productores orgánicos, ya que es intensivo en uso de mano de obra, ¿viste? A ver si se puede sacar alguna ley o algo que impositivamente haga que el sector crezca más." (Conservas Orgánicas)

started 25 years ago…we are around 1,600 producers and processors."[10] The sector that MAPO mostly represents has its roots in the export market; "Really, the organic movement was born in a strange, or distinct, way, it originated from the exporters, the brokers that go to the food fairs began to ask for organics 25 years ago, so they started going around and looked for producers and told them: I need tomato. So, they began to do organic tomatoes and today someone does garbanzo and from there it could be green lentils."[11] But because it represents entities along the organic supply chain, internally MAPO represents interests that are "totally distinct and that is what we see in MAPO, the fight between the concerns of the exporter, who needs to export, the concerns of the certifier that needs to certify, and the concerns of the producer if you see that they are doing something bad."[12] Despite these tensions between the economic interests of the organic supply chain participants, however, MAPO's president explained what unified them; "but [we are] always very much partners and looking toward the commercial side."[13]

For certified organic interests, MAPO is the "principle link to public policy. So, it has agreements with the National Agricultural Technology Institute [INTA], with INTI which is for industrial technology, it has agreements with the FAUBA, which is the agronomy part of the University of Buenos Aires, and then through law we have a link with the Ministry of

[10] "la única organización que reúne a todo el sector orgánico argentino. Nace hace 25 años…somos alrededor de 1,600 entre productores y procesadores" (MAPO)

[11] "El movimiento orgánico en realidad nace raro, nace distinto, nace a partir de los exportadores, los brókers que van a ferias de alimentos le empiezan a pedir orgánico, hace 25 años, entonces se daban vueltas y buscaban productores y le decían: necesito tomate. Entonces, se empezaba a hacer tomate orgánico y hoy tenés alguien que hace un garbanzo y por ahí podría ser un lentejón verde" (MAPO)

[12] "Totalmente distintos y eso es lo que más vemos en MAPO, es esa pelea ante la duda del exportador, necesita exportar, ante la duda el certificador necesita certificar y ante la duda el productor si ve que hace algo malo" (MAPO)

[13] "pero siempre muy asociados y mirando la parte comercial" (MAPO)

Agribusiness…organics in Argentina are governed by law 5127."[14] For Conservas Orgánicas, "any export always was through…this body of the government."[15] And that has remained consistent even as national-level politics have changed: "it's not that there are changes in course from one government to another…in whatever country of the world, the governments promote exports. Here we pay to export. We have to pay…5%."[16] Certified organic producers received direct subsidies not for any activities related to the alternative food movement, but for exporting. The president of Cereales Orgánicos, Matías, previously worked in areas of the government focused on organics and on exporting, which if nothing else, gave him knowledge for how to navigate the many relevant areas of the sprawling bureaucracy relevant to organic production and export. With Cereales Orgánicos, "we work with INTI to develop industrial products in the industry, and before we worked a lot with the Ministry of Science and Technology, developing new products and processes."[17] When Cereales Orgánicos wants to "speak with the State, we go with MAPO…to go together, yes, to have power."[18] While Cereales Orgánicos did not experience much of a difference in support between governments with different political orientations, there did seem to be one constant; Argentina's

> Agency of International Trade and Investment helps us export…They have shipping containers for organics and organize

[14] "principalmente el vínculo con las políticas públicas. Entonces, tiene acuerdos con el Instituto Nacional de Tecnología Agropecuaria [INTA], con el INTI que es el de tecnología industrial, tiene acuerdos con la FAUBA que es la Universidad de Buenos aires de la parte de agronomía y después tenemos por ley un vínculo con el Ministerio de Agroindustria…lo orgánico en Argentina está regido por la ley 5127" (MAPO)

[15] "cualquier exportación siempre fue a través, digamos, de este organismo comercial de como – es como un – o sea, con este organismo del gobierno." (Conservas Orgánicas)

[16] "no es que hay cambios de rumbo de un gobierno a otro…en cualquier país del mundo, los gobiernos fomentan las exportaciones. Nosotros acá para exportar. Tenemos que pagar…5%" (Conservas Orgánicas)

[17] "trabajamos con el INTI, en desarrollo de productos industriales, en la industria, y antes trabajábamos mucho con el Ministerio de Ciencia y Tecnología, desarrollando nuevos productos y procesos." (Cereales Orgánicos)

[18] "hablar con el Estado, vamos con MAPO [Movimiento Argentino para la Producción Orgánica]…para ir juntos, sí, para tener fuerza." (Cereales Orgánicos)

> negotiations, putting together meeting agendas for us. If I want to travel to the U.S., they give me a meeting agenda with organic companies…the embassy brings us to trade shows. It's very important to us, because we would not be able to go on our own. It's very expensive, it's a lot of work to do a trade show…and they develop the internet tools to offer products through the internet, things like that.[19]

When Argentina hosted the G20 summit, MAPO was even able to get "a stand in the entrance where all the presidents of all the countries and the rest of the G20 entered."[20] The state's most direct support for alternative farmers is exclusive to organic export farmers, who typically carried a social position and social networks helpful for accessing that support. As MAPO's president summed it up, "thinking that you can work in the private sector without the public sector is an error."[21]

Local organics

Accounting for about two percent of Argentinian organics, farmers selling locally appear to be only a tiny group when compared to the large export industry but nevertheless have a serious and growing presence in Argentina's local alternative agriculture scene. Local organic farmers in the Buenos Aires region most typically consisted of export producers seeking a new market for their non-perishable organic commodity crops or farmers selling fresh diversified vegetables exclusively to the local market. A handful of processors that have developed organic products for

[19] "Agencia de Comercio Exterior e Inversiones nos da apoyo para exportar…Traen contenedores orgánicos y hacen rondas de negocios, nos arman agendas de reuniones. Si yo quiero viajar a Estados Unidos…me armen una agenda de reuniones con empresas orgánicas…la embajada…nos lleva a las ferias. Es muy importante para nosotros, porque no podríamos ir solos. Es muy costoso, es mucho trabajo hacer una feria…Y hay un desarrollo de herramientas de internet para ofrecer los productos por internet y esas cosas." (Cereales Orgánicos)

[20] "un stand en la entrada donde entraban todos los presidentes de todos los países y demás del G20." (MAPO)

[21] "pensar que podés trabajar lo privado sin lo público es un error." (MAPO)

the local market, like this one that makes tofu, purchased from "producers that in general are 100% dedicated to export. In fact, I'm their only local client."[22] If some local organic farmers were grounded in the organic movement early on, the tendency has been to move toward the business side of things. As this producer from Huevos del Campo explained, "it began as a cooperative…Today it has changed into a business, now it is a business."[23] This is how this producer described their trajectory; "What we have achieved was putting traditional, natural production in a commercial context and that was not free, it took a huge effort."[24] Local organic farmers were very similar to their export market counterparts in their social networks and position.

Many of the export and local organic farmers organized together through MAPO. MAPO was engaged in initiatives to support the growth of the newer local market, such as through an organic-only farmers market that moved through the parks of Buenos Aires' wealthiest neighborhoods. The sole fresh vegetable farmer at this market was Capital Orgánica – which also aggregated certified organic produce from elsewhere in the country. Capital Orgánica's co-founder explained,

> MAPO brings together organic producers. There are many today that aim for the international market, to export…we are giving a hand to anything we can to develop the local market. This farmers market, when it emerged, we brought it directly to MAPO to be able to use it for the entire organic movement, with the idea of making the local market grow.[25]

---

[22] "productores que en general se dedican 100% a la exportación. De hecho, yo soy su único cliente local." (Tofu Orgánico)

[23] "empezó como una cooperativa…Hoy por hoy ha cambiado la empresa, ahora es una empresa." (Huevos del Campo)

[24] "Lo que logramos fue poner en contexto comercial la producción tradicional, la producción natural y eso no fue gratuito, llevamos un enorme esfuerzo." (Huevos del Campo)

[25] "MAPO congrega a los productores orgánicos. Hay muchos que hoy apuntan al mercado exterior, a la exportación…nosotros estamos dando una mano en todo lo que sea, apoyando a desarrollar el mercado local. La

But the relationship between local and export organic farmers within MAPO is also sometimes tense; "it is a delicate equilibrium…the two ends, exporter and small producer where you help the small producer the exporter gets angry, because the small producer begins to ask for more and starts to sell their production here and says, I sell here, pay me what they pay me here and you create a problem with the exporter."[26] Despite these internal tensions, export and local organic farmers relatively frequently interacted with each other, usually through MAPO, but only rarely with agroecological farmers.

Whereas government support for organic exports was clear, local organic farmers' relationships with the government was relatively neutral. Capital Orgánica's co-founder commented in 2017 on the relationship with the neoliberal Macri administration, "we don't have a relationship with the government, but it's not bad."[27] Shortly after the Kirchnerists regained power in 2019, Cereales Orgánicos' president worried, "The Macri government didn't give us any support, but it also didn't get involved with agroecology. It was neutral in this respect. But now this government [Fernández] has gone back to getting involved with agroecology. It worries us a lot, it would affect us in the local market, yes, maybe a little."[28] He perceived that the Kirchner administration before Macri "began to do a lot for agroecological agriculture"[29] and

---

feria, cuando surgió la feria, la llevamos directamente a MAPO, como para poder hacerla como desde todo el movimiento de orgánicos, con la idea de hacer crecer el mercado local." (Capital Orgánica)

[26] "es todo un equilibrio muy delicado…las dos puntas, exportador y pequeño productor donde ayudás al pequeño productor exportador se queja, porque el pequeño productor empieza a pedir más y empieza a vender su producción para acá y dice, ché, yo vendo para acá, págame lo que me pagan acá y le generás un problema al exportador." (MAPO)

[27] "no tenemos relación con el gobierno, pero no es mala." (Capital Orgánica)

[28] "El gobierno de Macri no nos dio ningún apoyo, pero tampoco mezcló lo agroecológico, ¿no? Como que fue neutral en ese sentido. Pero ahora este gobierno volvió a meter lo agroecológico. Nos preocupa mucho, nos afectaría en el mercado interno, sí, quizás un poco." (Cereales Orgánicos)

[29] "empezó a haber mucho la agricultura agroecológica" (Cereales Orgánicos)

worried that increased government support for agroecology would give an unfair market advantage to local agroecological farmers who already sold food more cheaply than local organics in part because they did not have costs associated with organic certification.

Solidarity agroecology

Agroecological farmers participating in the "solidarity economy" movement contrasted sharply with both export and local organic farmers. The solidarity economy markets and organizations utilized discourses that were explicitly anti-capitalist and focused on food sovereignty, collective organizing, and peasants' movements. Solidarity and unionized agroecological farmers were the most likely of any in this study to live in poverty, come from a subsistence farming background, and have worked as hired labor (versus owner) on conventional farms. There were three solidarity economy markets in the city of Buenos Aires, all of which were indoors. One solidarity agroecological farmer summed up why consumers liked these markets; "Because they see the difference that there is between conventional vegetables and natural vegetables. They notice and say, on top of that…lower cost than the others that are selling much more expensively. Many people that come to us comment on that."[30] Argentina also has about another 150 farmers markets similar to the solidarity economy markets, called *ferias francas*, which emerged as a small-scale farmer reaction to the onslaught of neoliberalism in the early 1990s, but these markets were mostly located outside of this study's focus on the Buenos Aires metropolitan foodshed (Leslie 2017a). Solidarity agroecological farmers mostly grew diversified vegetables

[30] "Porque ven la diferencia que hay entre las verduras comunes con las verduras naturales. Se dan cuenta y dicen, no, y aparte…menos valor que los otros, que están vendiendo mucho más caro. Mucha gente que nos vienen a comentar eso." (Lucía)

and sometimes raised chickens on small plots of land. They may have had family or hired help, but the farm-level decision makers spent most of their days doing physical labor, unlike many organic farm managers. And whereas most organic farmers I spoke with had a primary goal of business growth, solidarity agroecological farmers often "don't want to grow beyond a certain point,"[31] as a solidarity economy market organizer characterized it.

Solidarity agroecological farmers were often organized in local organizations like Quinta Solidaridad. While Quinta Solidaridad has a unique past, solidarity agroecological organizations were often similar in their histories of being responses to the 1976-1983 dictatorship, neoliberalism of the 1980s and 1990s, and/or the 2001 economic crash. A Quinta Solidaridad organizer recalled, "it was born at the end of the 1980s, like so many social organizations, after the return to democracy, to work on recuperating rights to do with the topic of housing…a plan for literacy…and then came an area for women, there was an area for the cooperative movement, there was an area related to the rural."[32] Then, as neoliberal policies were spreading rapidly through Argentina in "the 1990s, neoliberalism cut a lot, including that social work"[33] Quinta Solidaridad began to work in agroecology, even though "none of us came from agroecology."[34] Quinta Solidaridad brought its organizer's social movement experiences to their current work in agroecology, which they saw as part of a broader scope of social and environmental change they worked to enact. "We are public communicators, educators, we work with the community…the

[31] "no quieren crecer más allá de cierto punto" (Quinta Solidaridad)

[32] "nace a fines de los 80, como tantas organizaciones sociales, de vuelta a la democracia, trabajar el tema digamos de recuperación de derechos que tenía que ver con el tema de la vivienda…un plan de alfabetización… y después, bueno, viene un área de la mujer, había una área de cooperativismo, había un área relacionada a lo rural" (Quinta Solidaridad)

[33] "los 90, el neoliberalismo como que cortó mucho e inclusivo ese trabajo social" (Quinta Solidaridad)

[34] "ninguno de nosotros venía de la agroecología" (Quinta Solidaridad)

program is, first, work on structures related to agroecology, appropriate technologies, there's a topic about deforestation, there's a community center within a joint program with local residents, we have a house for seeds."[35] Solidarity agroecological farmers had few social ties with other types of alternative farmers, except when they purchased certified organic produce to sell at solidarity economy markets for items they could not grow locally; "the apples and pears, we have another producer's. That comes with the certification."[36] While solidarity agroecological farmers are locally focused, some are organized internationally, such as through "the Latin American agroecology movement, MAELA, and with MAELA we have, every once in a while, assemblies, meetings, fairs, and [we also work on] questions related to commercialization and production."[37] MAELA and MAPO are both geared internationally, but whereas MAPO is largely a trade association that advertises the organic brand to middle- and upper-class consumers, solidarity agroecological organizations are focused on improving the livelihoods of farmers who use agroecological practices as a strategy for climbing out of poverty and to access agroecological food themselves.

Solidarity agroecological farmers' closest interactions with the state were through rural development programs aimed at improving small-scale farmers' livelihoods. One of these farmers, Sofía, helped organize the Feria de las Semillas at the provincial level, and after they

[35] "Nosotros somos comunicadores populares, educadores, trabajamos con la comunidad…el programa tiene, primero, trabajo de conformación en relación a la agroecología, tecnologías apropiadas, hay un tema de deforestación, hay un centro comunitario dentro del programa que está articulado con vecinos de la zona, tenemos una casa de la semilla" (Quinta Solidaridad)

[36] "las manzanas y peras, tenemos otro productor. Eso viene con certificación" (Lucía)

[37] "el movimiento agroecológico Latinoamericano, MAELA, y con MAELA tenemos a cada tanto asambleas, encuentros, ferias y también una de las cuestiones…acerca de la comercialización y la producción" (Quinta Solidaridad)

invited President Cristina Kirchner, "Cristina went, and she loved it, so she nationalized it."[38] In those years many solidarity economy farmers also received free seeds from Prohuerta, "a program of public policies that promotes agroecological productive practices for self-sufficiency, nutritional education, the promotion of fairs and alternative markets with a focus on including family farmers"[39] (INTA 2011). But when President Macri took over in 2015, Sofía lamented how the government cancelled the Feria de las Semillas "and they also took away Prohuerta. They don't give us seeds anymore."[40] Solidarity agroecological farmers' most direct relationships with the state were through rural development and anti-poverty programs, in contrast to organic farmers' most direct relationship with the state being support for exporting.

Unionized agroecology

The newest player in Argentinian agroecology is also quickly becoming the largest. The UTT (Unión de Trabajadores de la Tierra – Land Workers Union) is a conventional farm labor union that in Buenos Aires alone has 54 bases, each consisting of 50-300 (conventional) farmers. "90 percent are vegetable and fruit farmers, and the families, on average, rent 1 to 3 hectares…it's rare that one of our partners has more than three hectares [seven acres],"[41] according to Paula, the coordinator of the new branch of the UTT focused on agroecology, called the Consultorio Técnico Popular. They claim to have about 250 families who are growing agroecologically on

[38] "Cristina fue, y le encantó, entonces la nacionalizó ella." (Sofía)

[39] "un programa de políticas públicas que promueve las prácticas productivas agroecológicas para el autoabastecimiento, la educación alimentaria, la promoción de ferias y mercados alternativos con una mirada inclusiva de las familias productoras." (INTA 2011; translated by the author)

[40] "y Prohuerta también la sacaron, no nos dan más las semillas." (Sofía)

[41] "90% son horticultores, y las familias, en promedio, alquilan de 1 a 3 hectáreas…es raro el compañero que tiene más de 3 hectáreas," (UTT)

about 300 hectares (741 acres) (UTT 2020). Between 2017 and 2019, the UTT opened five indoor agroecological stores, a distribution center, and coordinates everything from teaching farmers how to transition to agroecology to organizing the entire food supply chain from farm to market. Largely of Bolivian and Indigenous descent, unionized agroecological farmers typically came from a similar social position as solidarity agroecological farmers.

Unionized and solidarity agroecological farmers rarely networked with each other or other alternative farmer groups, however. Unionized agroecological farmers were part of the UTT labor union before they converted from conventional to agroecological farming, and their organizational networks have so far remained most closely tied to the UTT and its focus on labor, rather than with existing agroecological organizations. On the other hand, the UTT is so expansive in its numbers and programming that there was extensive networking across sectors within the organization. For example, "you have the Area of Press and Communication, who are the partners in charge of, more than anything else, diffusion through the networks…Then you have the Area of Commercialization:"[42] the area focused on agroecological food stores. In addition to other social programming, "you have the Secretary of Gender, who are the partners that work with cases of domestic violence or violence against women, and they also give workshops, sexual education."[43] While UTT farmers had relatively little interaction with other alternative agriculture subgroups, it had strong networks across sectors of the broader umbrella organization.

[42] "tienes el Área de Prensa y Comunicación, que son los compañeros que se encargan de, más que nada, de difusión de redes…Después tienes el Área de Comercialización" (UTT)

[43] "tienes la Secretaría de Género, que son compañeras que trabajan en casos de violencia familiar o violencia hacia las compañeras, y también dan talleres, educación sexual" (UTT)

Unionized agroecological farmers had a general sentiment similar to solidarity agroecological farmers that the neoliberal Macri administration did little for agroecological agriculture like theirs. As Paula put it, "when you present a project, [the state] doesn't support it because, well, it was Macri, and what he does the least is support this sector. The big sectors are more or less important to them, but the small sector is always invisibilized."[44] Paula, like many unionized and solidarity agroecological farmers, had more hope for the returning Kirchnerist administration; "it's projected that it's going to have a change...it's wanting to promote agroecology to the national level as state policy."[45] But Paula was also cautious about how these hopes would play out in practice; "Because, well, one thing is what they tell you, another thing is what they begin to do. For now, there is not active participation, nor economic help or anything else. You can, more or less, get some small project, but not more than that."[46] More than any other alternative agriculture group, the UTT utilized direct protests against the state to push its agenda. Under Macri, it would regularly shut down downtown Buenos Aires through a massive protest called a *verdurazo*, with farmers selling vegetables from tractors in the city streets so cheaply that enormous crowds would flock to downtown; a strategy to draw attention to how little farmers actually earn from each vegetable they grow. While this was an action of the broader UTT – rather than its own subgroup of agroecological farmers – it speaks to the organization's prioritization of labor rights and willingness and ability to utilize direct action to

[44] "cuando vos le presentabas un proyecto, no lo apoyan porque, bueno, estaba Macri, también, y lo que menos hace es apoyar a este sector. Por ahí sí le importan los sectores grandes, pero el sector chico siempre está invisibilizado." (UTT)

[45] "se proyecta sí que va a haber un cambio…está queriendo promocionar la agroecología a nivel nacional como política de estado." (UTT)

[46] Pero, bueno, una cosa es que ellos te lo digan, otra cosa es que la empiecen a ejecutar. Por ahora, no hay participación activa, tampoco apoyo ya sea económico o de cualquier otra cosa. Por ahí, les sacás algún proyecto chiquito, pero más de eso no. (UTT)

get the state's attention. At the same time, the UTT was willing to work with the state, when it demonstrated effort to support its values.

Extensive agroecology

Whereas unionized agroecological farmers came to agroecology from raising conventional vegetables with hand labor on small, rented plots, extensive agroecological farmers typically came to agroecology from raising conventional grain and oilseed crops with machines on vast landholdings they acquired through familial or personal wealth. With access to large amounts of land, they focused on mechanizable crops like corn, soy, and sunflower as well as dairy or beef (fed with a mix of pasture and grains). Similar to organic farmers, extensive agroecological famers were strongly disillusioned with the use of agrochemicals; "throwing glyphosate, you kill everything."[47] Extensive agroecological farmers tended to come from similar social positions as the export and local organic farmers and similarly primarily held managerial (rather than physical labor) roles.

Extensive agroecological farmers were highly influenced by the agronomist Eduardo Cerdá, who had an active public presence in workshops, interviews, and networking in government and agricultural organizations. These farmers often looked to the 650-hectare (1,606 acre) farm La Aurora as a model, which Cerdá began helping transition to agroecology in 1997 and has since been selected as a model for agroecology by the United Nations' FAO (FAO 2016). There was some tension between extensive agroecological farmers and organic farmers, because they had similar goals of scaling up production without using agrochemicals, but

[47] "tiro el glifosato, matás todo." (Queso del Campo)

extensive agroecological farmers did not have to comply with the organic certification standards. Extensive agroecological farmers had few interactions with solidarity or unionized agroecological farmers, but did sell products in their stores. They sometimes overlapped with biodynamic agroecological farmers.

Cerdá also helped create RENAMA (Red Nacional de Municipios y Comunidades que Fomentan la Agroecología – National Network of Municipalities and Communities that Promote Agroecology). In 2020, the Fernández administration appointed Cerdá director of a new office of agroecology (Mazzoleni 2020).[48] While there have been longstanding efforts in Argentina to institutionalize support for agroecological producers in government (Leslie 2017a), explicitly using the term agroecology in a national-level office is new. The previous Kirchnerist administrations (2003-2015) preferred the title "family agriculture" (which focused on scale of production more than production practices).

Biodynamic agroecology

Biodynamic agriculture falls under the umbrella of agroecology thanks to its focus on promoting ecological processes like living soils, but it has a particular history, belief system, and associated social networks. Biodynamic agriculture is the brainchild of Rudolf Steiner, the Austrian philosopher who also spawned Waldorf education and Anthroposophy spirituality. Some biodynamic farmers follow the spiritual beliefs of Anthroposophy and strictly adhere to planting schedules of the astrologic biodynamic calendar. For María, who runs a small "agroecological and biodynamic"[49] vegetable farm, "For me it seems that biodynamics is a way of life and a

[48] Dirección de Agroecología, Ministerio de Agricultura, Ganadería y Pesca de la Nación

[49] "agroecológica y biodinámica" (María)

philosophy. And it seems to me that biodynamics integrate the soul in the production…it's integrative…the human being, the animal, the vegetable…it seems like it integrates feeling with thought."[50] Other biodynamic farmers closely follow the scientifically grounded agroecological practices of biodynamics but the spiritual side only loosely, if at all. For instance, a farmer in the biodynamic dairy cooperative Tambo Holístico explained that cooperative members follow the spiritual side "more or less, in reality many don't know what it is. The worker cooperative is open to bringing in new people."[51] Biodynamic farms were highly diversified, often with mixed vegetable, fruit, and integrated animal systems (especially cow manure, a key element of biodynamics' fertility and spiritual system). Biodynamic farmers tended to come from wealthier socioeconomic positions than solidarity and unionized agroecological farmers. However, the most established biodynamic farms derived their capital not from personal or family wealth (as with the organic and extensive agroecological farmers), but through Waldorf and Anthroposophy community sponsors.

The social networks of biodynamic farmers tended to be much more associated with other biodynamic farmers, the Anthroposophy community, and Waldorf schools than with other agroecological or organic agricultural networks. Whereas I observed many agroecological farmers looking to the biodynamic calendar or workshops as a model, I only observed biodynamic farmers actively building ties in the solidarity or unionized agroecology circles when they were selling biodynamic food in agroecological markets. Biodynamic farmers shared a

[50] "Para mi me parece que la biodinámica es como una forma de vida y una filosofía, viste? Y me parece que la biodinámica integra el alma en la producción…Es integrador… el ser humano, el animal, el vegetal…parece que integra el sentir con el pensar." (María)

[51] "más o menos, en realidad muchos no saben ni lo que es. La cooperativa de trabajo está abierta para el ingreso de nuevas personas." (Tambo Holístico)

similar vision of the ecological side of agriculture with the other agroecological farmers, but other agroecological farmers did not share the spiritual orientation of many biodynamic farmers. It was less of a leap for biodynamic farmers to build social ties with the organic community than it was for solidarity and unionized agroecological farmers to because they did not share the critique of capitalism and focus on social change beyond the local. Tambo Holístico's farmer continued,

> Links with other organic organizations: With MAPO there's a relationship, they come to visit the farm…We have things with other producers…there is a commercial relationship…They are not always organic, the organic certification is just emerging, for many of them they are in the process or they are agroecological.[52]

Beyond partnerships that one extensive agroecological farmer called "commercial and very friendly,"[53] biodynamic farmers were more likely to build agricultural social networks with other biodynamic farmers internationally rather than with organic or agroecological farmers in Argentina. Whether for scientific or spiritual reasons, biodynamic farmers' ecological practices were rigorous, so networks between Tambo Holístico's cooperative networks "have a very complete link because of what it takes to do agriculture like this."[54]

Biodynamic farmers had some of the fewest direct relationships with the state. Few in the Buenos Aires region were exporters, so did not interface with the state for biodynamic or organic certification. Unlike unionized and solidarity agroecology, they rarely attached systemic critiques around issues like labor and gender to their work, and did not actively engage in protest politics.

---

[52] "Vínculos con otras organizaciones de orgánicos: Con el MAPO hay una relación, están por visitar el campo…Tenemos cosas con otros productores…Hay un vínculo comercial…No siempre son orgánicos, lo orgánico certificado es incipiente, en muchos es como ellos, están en proceso o son agroecológicos." (Tambo Holístico)

[53] "Comercial y muy amistoso" (Huevos del Campo)

[54] "Es un vínculo muy completo porque tiene que hacer agricultura de este tipo." (Tambo Holístico)

Like solidarity agroecological farmers, some of the smallest biodynamic farms received support through rural development programs like Cambio Rural, but that was rare. Tambo Holístico had applied for loans through the Ministry of Production, Ministry of Agribusiness, and the National Bank, but they were largely unsuccessful. Overall, biodynamic farmers had relatively minimal interaction with the state.

While there was variation within each subgroup of alternative farmers, Table 1 summarizes patterns across subgroups. Subgroups' economic and social networks correlated with their scale, primary crops, and common pathways into agriculture:

Table 1: Subgroups of Argentinian alternative farmers

Subgroup	Scale	Primary crops	Common pathways into agriculture
Export organics	Large	Grains, oilseeds, meat, dairy	• Conventional farm owner • Business, economics, or agricultural engineering degrees
Local organics	Medium	Vegetables, fruits	• Conventional farm owner • Business, economics, or agricultural engineering degrees
Extensive agroecology	Large	Grains, oilseeds, meat, dairy	• Conventional farm owner • Agricultural engineering degrees
Biodynamic agroecology	Medium	Vegetables, fruits, dairy	• Variable • University career • Exposure to teachings of Rudolf Steiner
Unionized agroecology	Small	Vegetables	• Conventional farm worker • Labor union organizing
Solidarity agroecology	Small	Vegetables, poultry	• Subsistence agriculture • Conventional farm worker • Solidarity economy movement organizing

As discussed above, there were also clear patterns between subgroups according to their social identities, relationship with the state, and ultimately, relative power to enact their goals. As the next section unpacks, these patterns also correlated with subgroups' approaches to food security.

Market to socially embedded food supply chains and approaches to food security

Export organic farmers saw corporate market-based strategies as the only viable way of delivering alternative food to consumers. Whereas solidarity and unionized agroecological farmers often spoke about organics as capitalist businesses, Cereales Orgánicos' president believed that their corporate global trade approach was simply grounded in realism. Cereales Orgánicos' president was aware of the politicized perspectives on organics and commented, "agroecological agriculture is a little associated with leftist ideology. So that 'organic is capitalist and agroecology [is] socialist.'"[55] Solidarity and unionized agroecological farmers indeed did tend to speak about organic farmers in this dualistic language, and vice versa. Biodynamic and extensive agroecological farmers, coming from a more middle ground on the market to socially embedded food insecurity continuum, tended to talk about the other subgroups with more measured language.

Yet while solidarity and unionized agroecological farmers usually had a somewhat oversimplified view of organic farmers' political positions and social movement engagement, most organic farmers I spoke with drastically misperceived solidarity and unionized farmers. Cereales Orgánicos' president thought that agroecological farmers simply "don't want to follow

[55] "la agricultura agroecológica está un poco relacionada con la ideología de izquierda. La que, 'los orgánicos son capitalistas y los agroecológicos somos socialistas.'" (Cereales Orgánicos)

standards. Because following standards is to tie yourself to a capitalist certification business."[56] Agroecology, in his view,

> Is to spend a ton of money thinking that it helps poor people or poor farmers, and what help is it going to give them? Are they going to have an agroecological market where they can sell their products? Well, that's fine. Maybe they do that, but how are we going to transport a potato from Jujuy to the market in Córdoba or Buenos Aires? They are the biggest cities in Argentina. So they'll have to support trade, and that's what people on the left don't like to do.[57]

Yet this perspective that agroecological farmers are ideologically against participating in markets and following standards does not align with agroecological farmers' reality or self-perceptions. In contrast to Cereales Orgánicos' perspective on agroecology, in the second half of the 2010s the UTT vertically integrated agroecological food supply chains to supply their own agroecological food stores in the city of Buenos Aires. They have a new part of the organization dedicated to commercialization.[58] In contrast to Cereales Orgánicos' perspective about agroecologists resisting long distance trade when it is necessary, at the time of this research the UTT was organizing nuclei of UTT agroecological farmers in different parts of Argentina to work together to supply each other with products that cannot feasibly be grown locally. Solidarity agroecological farmers similarly established their own food stores in the city, and like the UTT farmers, sell certified organic, biodynamic, and extensive agroecological products grown far away for anything they could not do themselves, but only as a second resort.

---

[56] "no quieren cumplir normas. Porque cumplir normas es, este, atarse a una empresa certificadora, capitalista." (Cereales Orgánicos)

[57] "Es gastar un montón de dinero pensando en ayudar a gente pobre o a agricultores pobres, y ¿cuál es la ayuda que les van a dar? ¿Les van a hacer un mercado agroecológico donde puedan vender todos sus productos? Bueno, está bueno. Capaz que si hacen eso, pero ¿cómo vamos a transportar la papa de Jujuy al mercado de Córdoba, Buenos Aires? Son las ciudades más grandes de Argentina. Entonces, tendría que tener un respaldo comercial, y eso es lo que a la gente de izquierda no le gusta." (Cereales Orgánicos)

[58] "Área de Comercialización" (UTT)

Solidarity and unionized agroecological farmers' conception of food sovereignty was not one of purist localism, but rather one of pragmatic organization of labor and food supply chains that honor the main principles of food sovereignty while meeting the biophysical and economic realities of their context. Unionized and solidarity agroecological approaches to food supply chain governance were akin to corporate vertical integration strategies in the sense that they all sought to extend power along the entire food supply chain, but they differed in how they wanted to exert that power for market to socially embedded goals.

Local organic farmers complicate a dualistic portrayal of organics aligning with corporate global trade versus agroecological food sovereignty because selling organic food to Argentinians may mean they prioritize the social value of food sovereignty more than the organic farmers who export. Yet despite selling food to the arguably underserved Argentinian organic market, these farmers were driven to sell locally not necessarily from a socially embedded focus on food sovereignty, but because they saw local sales as a new market opportunity. Unlike farmers who exclusively exported, local organic farmers did prioritize working to enable Argentinians to access agrochemical-free food that Argentina is famous for growing but Argentinians rarely get to enjoy. However, these farmers did not go so far as to critique *which* Argentinians could afford to enjoy local organic food, instead often marketing to gourmet points of sale or "in the big supermarkets"[59] that in Argentina are far more expensive than the many local *verdulerías*. Consequently, these farmers sell to the wealthiest Argentinians without an accompanied critique of that as a problem, let alone a critique of the broader neoliberal capitalist food system.

[59] "en los supermercados grandes" (Campo Orgánico)

Instead, the very design of the organic certification is to garner a price premium and to grow as businesses. Mateo of Capital Orgánica – a prominent local organic farm and aggregator that has been selling organics primarily through home delivery since the early 2000s – saw that the demand for organics like in the "United States have a very, very big growth rate, exponential."[60] When I asked Mateo about his vision for the future of Capital Orgánica, he responded, "the objective is to continue growing, consolidating ourselves in the local market."[61] For Mateo, if it made sense business-wise, growth could continue throughout the country and even to the export market: "If one day we can arrive to the point of supplying the rest of the country's provinces, it would be a pleasure. And, well, we don't take our eyes off our prepared and packaged products to be able to also offer them to the international market."[62]

Whereas the food sovereignty perspective focuses on local markets as part of a package of practices dedicated to local democratic governance of food supply chains, most local organic farmers saw local markets as a business opportunity, and they were not fundamentally opposed to consolidation of corporate control of food supply chains. For Provincia Orgánica, an organic vegetable farm like Capital Orgánica but focused on wholesale rather than direct sales, "deciding to export means having much more land in a single product and no longer supplying our clients here."[63] This local organic farmer rejected the monocropping approach of export organic farmers because of their ecological values of (agro)biodiversity, but did not resist the corporate approach

[60] "Estados Unidos tiene un crecimiento muy, muy grande, exponencial." (Capital Orgánica)

[61] "el objetivo es seguir creciendo, consolidándonos en el mercado local." (Capital Orgánica)

[62] "Si en algún momento podemos llegar a apuntar a abastecer también el resto de las provincias del país, sería un placer. Y, bueno, no quitamos la mirada con lo que es productos elaborados y envasados, también poder ofrecerlos al mercado externo." (Capital Orgánica)

[63] "decidir exportar significa hacer mucha más superficie de un solo producto y dejar de abastecer a nuestros clientes acá." (Provincia Orgánica)

and sold locally through corporate chains like Carrefour, Disco, and Walmart. Capital Orgánica's business model relied on consolidating a diversity of organic food from producers around Argentina under its own brand. Mateo explained, "we stress that all of the products that we sell carry our brand. It's not our idea to be a distributor, right?, an advertiser. Really, we try to grow [Capital Orgánica] as a business, as a brand."[64] As this producer from Huevos del Campo put it, "we offer a differentiated product that began to sell in the market that has money…you have to pay the bills…promise me to pay a differentiated price or some form of work or a better product that offers a better reality, but I am not the promoter of happiness."[65] These farmers were not opposed to corporate control over alternative food in Argentina, which was increasing; "There are a number of big companies that are wanting to do organics here, like Carrefour…Nestlé is developing organic dairy barns. Unilever is wanting to get a factory in Argentina."[66]

Organic farmers signaled their market-based approaches to food security through their perspectives that agrochemical-free food access must come through consumer choice and education. Provincia Orgánica's farmer commented,

> every person makes the decision that they want to make, if they want to decide to top a salad with pesticides, if they want to eat agroecological food, or if they want another type of food with more control, we'd say, a more controlled consumption is organic. But the people have to know the whole story, they have to know what the differences are to be able to choose and to really know what it is that they're consuming.[67]

[64] "hacemos mucho hincapié en que todos los productos que nosotros comercializamos llevan nuestra marca. No es que nuestra idea es ser un distribuidor, ¿verdad?, un comercializador. Realmente, tratamos de hacer crecer a [Capital Orgánica] como empresa, como marca." (Capital Orgánica)

[65] "le dimos un producto diferenciado que se empezó a vender en el mercado que tiene dinero…hay que pagar las cuentas…comprometerme a pagar el precio diferencial o alguna forma de trabajar o un producto mejor para que tenga una realidad mejor, pero yo no soy el promotor de la felicidad." (Huevos del Campo)

[66] "Hay varias empresas grandes que están queriendo hacer orgánicos aquí, como Carrefour…Nestlé está desarrollando tambos orgánicos. Unilever está queriendo sacar una fábrica en Argentina." (Cereales Orgánicos)

[67] "cada uno tome la decisión que quiera, si quiere, como decimos condimentar la ensalada con pesticidas, si quiere comer agroecológico o quiere otro tipo más de control, digamos, un control más que es consumido orgánico. Pero la

Organic farmers like this one perceived that the route to expanding alternative agriculture was teaching consumers the benefits of organics so that they would choose them, despite the higher price; "if someone who produces agroecological food sells, for instance, a bag for 200 pesos, I can't sell it for 200 pesos, why?, because I have a labor cost, I have a certification cost; so I have to sell it at a higher price."[68]

Yet the market-based consumer education and choice model of food security does not account for the realities of the economic constraints of poverty. It was a core goal for solidarity and unionized agroecological farmers to make their food as affordable as possible. As solidarity agroecological farmer Lucía explained, "if we had that certification, we could not sell at the price we are selling at here. We are selling much more inexpensively."[69] Many of these farmers did not just try to price food affordably, but they did so by cooperating and deciding prices collectively "between all of the partners."[70] For solidarity and unionized agroecological farmers, food sovereignty was not just about making food accessible to all, but also meant having a democratic process for making decisions about how exactly that was going to happen.

Solidarity and unionized agroecological farmers' perspectives on food security and poverty were likely influenced by the fact that so many of them experienced poverty themselves. Sofía's entry into solidarity agroecological farming began with gardening to provide nutrition to

---

gente tiene que conocer todo el abanico, tiene que saber cuáles son las diferencias para poder elegir y conocer bien qué es lo que puede consumir." (Provincia Orgánica)

[68] "si el que produce agroecológico vende, suponete, un bolsón a 200 pesos, yo no lo puedo vender a 200 pesos, ¿por qué?, porque tengo un costo de mano de obra, tengo un costo de certificación; entonces, lo tengo que vender más caro." (Provincia Orgánica)

[69] "si nosotros tenemos esa certificación, no podemos vender al precio que estamos vendiendo acá. Nosotros estamos vendiendo mucho más barato" (Lucía)

[70] "entre todos los compañeros" (Lucía)

her children, who she did not want to poison with conventional food. Before moving to Buenos Aires Province, Sofía spent her life in the northern Chaco province, one of Argentina's poorest. In Sofía's words, "that was the theme there in the Chaco, a lot of misery, a lot."[71] She worked in the cotton fields, which was unsteady and occasional, but at least it paid in money, unlike the job she had logging *quebracho* trees for charcoal, which "you didn't know if they were going to pay you, or if they'd pay you in merchandise."[72] Sofía's Chaco house in "that time did not have electric lights, everything was kerosene."[73] Yet Sofía proudly recounted, "nothing bad happened to us, no, we never got sick or anything…but wherever I went I always had a garden, always, always."[74] A garden was key to Sofía's strategy for achieving food security for her family of eight children in a context where the broader food economy was failing them.

For Sofía, food sovereignty did not mean doing everything on her own. For instance, Sofía's plot was too small to support (especially agroecological grass-fed) beef, so "I would send the butcher a bag of vegetables and he would bring me meat."[75] Sofía knew that whereas ruminants like beef have the unique capacity to digest grass, monogastrics like pigs (and humans) cannot, but a few pigs are useful on a small plot because they can live on an omnivorous diet of food scraps and other "waste." But to reproduce just a few pigs, it is not viable to keep an adult male year-round just for his semen, so "we brought vegetables to a neighbor and he did the service and then we had piglets."[76] Similarly, for bread, "The baker was

---

[71] "ese era el tema allá en el Chaco, mucha miseria, mucha." (Sofía)

[72] "vos no sabes si te van a pagar, o lo vas a cobrar mercadería." (Sofía)

[73] "ese tiempo no había ni luz eléctrica, le sacaba todo el kerosén." (Sofía)

[74] "no nos pasaba nada, no, no enfermábamos, nada…pero siempre donde fui tuve mi huerta, siempre, siempre." (Sofía)

[75] "yo mandaba a la carnicería un bolsón de verdura de me traían carne." (Sofía)

[76] "llevamos a un vecino y hacíamos servir y ya teníamos lechones." (Sofía)

my friend, and I would wash his clothing and bring him a bag of vegetables and he would bring me a bag of bread. That's how my children never suffered from their needs."[77] For Sofía, finding food sovereignty meant strengthening non-market relationships with others in the local food system. Building on these agricultural social networks and her history of farming for self-sufficiency, Sofía later established an agroecological farm and became an organizer in some of the solidarity economy movement's main agroecological initiatives.

Sofía's experience with agroecology stands in stark contrast to this export organic farmer's view that agroecology "is not a solution for the producer, because he doesn't get a special profit for doing agroecological agriculture. It's a moral profit. He thinks that he is a better person for doing agroecology."[78] Rather, she used agroecology and food sovereignty to offer exceptional food to her children despite experiencing poverty, move from a conventional agricultural worker to an alternative farm owner, and participate in a movement to help others do the same.

Much more recently than the start of the solidarity economy movement, unionized conventional farmers started adopting agroecological practices. When I pushed Paula on why the UTT used "agroecology" and not another alternative food descriptor, she pointed to the social values the UTT prioritied, especially food sovereignty. "We use agroecology because we know who produces the vegetable, how it arrives, who sells it, a just price for the consumer and the producer and the person that sells it…but we always use agroecology because we know what

[77] "Era amiga del panadero, yo le lavaba la ropa al panadero y…yo manda un bolsón de verdura me traían un bolsón de pan. Y así que mi hijo nunca sufrieron necesidades." (Sofía)

[78] "Y tampoco hay una solución para el productor, porque no tiene una ganancia especial por hacer agricultura agroecológica. Es una ganancia moral. Él piensa que es mejor persona porque hace agroecología." (export organic farmer)

comes from this: food sovereignty, gender equity."[79] While food sovereignty is often described from a consumer's perspective of liberating eaters from dependence on a food system they cannot control, Paula described it from a producer's perspective:

> Really, agroecology means sovereignty…Sovereignty begins from the moment that you wake up in the morning and nobody controls your time. It begins with buying seedlings, that are also controlled by companies…the chemicals, that they sell you agrochemicals…ceasing to depend on all the inputs they sell you for production. Everything is tied to the U.S. dollar. And with agroecology, you stop depending, really, on the entire system, from the seed to the last input you need. And, of course, sovereignty means freeing yourself from the entire system that costs us so much.[80]

The UTT's conception of agroecology is inseparable from the social value of food sovereignty. They believed that food sovereignty demands reorganizing the entire capitalist food system by extricating corporate control over farmers' labor time and production inputs. They worked toward building trust through the food supply chain, reversing the antagonism of economic interests between producer and consumer by increasing transparency and prioritizing keeping agroecological food prices affordable. Doing all of this required a robust organization, especially for helping farmers access the key resources they needed for economic viability (a topic explored in depth in chapter four).

---

[79] "Usamos agroecología porque nosotros sabemos quién produce la verdura, cómo llega, quién la comercializa, un precio justo para el consumidor y el productor y el que lo comercializa…Pero nosotros siempre usamos agroecología porque sabemos qué pasa en esto, soberanía alimentaria, igualdad de género." (UTT)

[80] "En realidad, agroecología significa soberanía…Soberanía empieza desde el momento en que vos te levantas y ya no hay nadie que controle tu tiempo. Empieza por la compra de plantines, que también la tienen empresas…los químicos, que te los venden agroquímicas…dejar de depender de los que te venden todos los insumos para la producción. Todo eso está dolarizado. Y con la agroecología, dejas de depender, en realidad, de todo ese sistema, desde la semilla hasta el último insumo que necesitas. Y, obvio, soberanía es librarse de todo el sistema que cuesta tanto." (UTT)

Paula repudiated how the organic industry not only undervalued labor but did so without even delivering a product that was affordable for the people who grew the food. “On top of it all, the vegetables are really expensive, just because they’re grown organically, they’re worth three, four times more than a conventional vegetable. With agroecology, we aren’t trying to make vegetables so expensive. We aren’t trying to have people working for others on plantations, because an entire family only needs two hectares [five acres].”[81] The UTT’s conception of just labor demanded not only just working conditions and pay, but adherence to the food sovereignty principle of democratic decision-making power at the point of production while closing the antagonism between worker profit and consumer affordability. In contrast, organic certification did not even mention labor, much less a nuanced conception of just labor like that of the UTT.

Biodynamic farmers revealed a key difference between framing the social goal of food security using the term “local” versus “food sovereignty.” These farmers focused their social change efforts on their local Anthroposophy or Waldorf communities. One small-scale biodynamic farmer I spoke with had a special program for “children with disabilities.”[82] A large-scale biodynamic farm sold some of their food locally, but most of it in just the wealthiest neighborhoods in nearby Buenos Aires; “80% of sales are in the City of Buenos Aires, a lot in Recoleta, Palermo, Belgrano, and Caballito.”[83] This supports the idea that “local” can be employed as a politically flexible concept (Winter 2003). Biodynamic farmers prioritized local sales but did not reject export organics out of an anti-capitalist interpretation of food sovereignty

[81] “Pero después la verdura es carísima, solo por el hecho de que sea orgánico, vale tres, cuatro veces más que una verdura convencional. Con lo agroecológico, no buscamos que la verdura sea cara. No buscamos tener gente trabajando en las fincas, porque en 2 hectáreas trabaja una familia.” (UTT)

[82] “chicos discapacitados” (María)

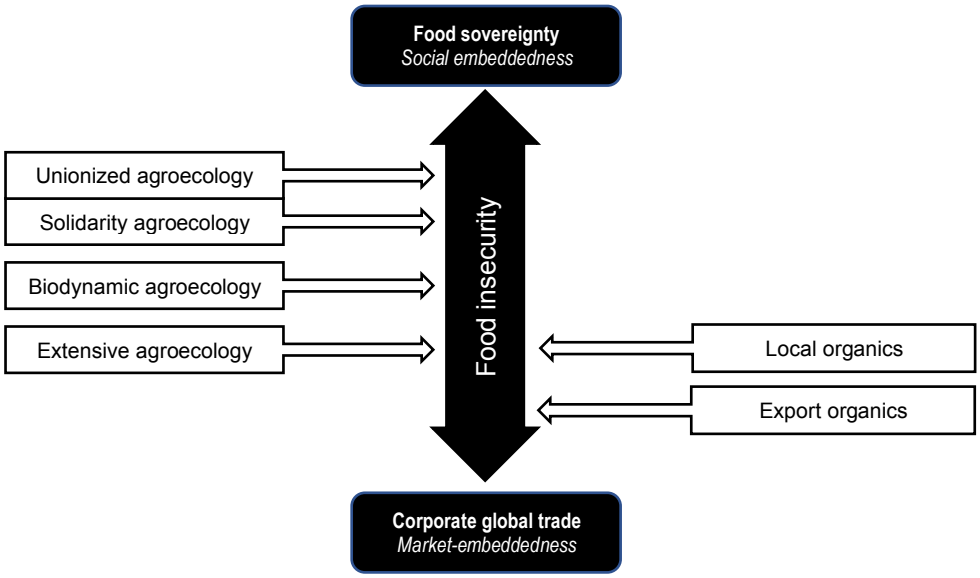
[83] “El 80% de las ventas son en CABA, mucho en Recoleta, Palermo, Belgrano y Caballito.” (Tambo Holístico).

like the solidarity and unionized agroecological farmers did. Like the local organic farmers' relationships with export organic farmers, local biodynamic farmers were often closely networked with export biodynamic farmers.

Extensive agroecology similarly existed in the middle of the market to socially embedded food insecurity continuum. Like biodynamic farmers, extensive agroecological farmers did not employ a critique of neoliberal capitalism in the way that unionized and solidarity agroecological farmers did. Unlike biodynamic farmers, extensive agroecological farmers did not have a particular community that they focused on, as biodynamic farmers often did with their Anthroposophy and Waldorf communities. Extensive agroecology prices did tend to be more affordable than equivalent certified organic products, and farmers like this cared about keeping prices affordable; "I don't want to charge more because it's more natural…[conventional cheese] is my reference, yes, I charge the same price, and it works for me."[84] Farmers within each subgroup varied on the market to socially embedded food insecurity continuum. However, I have also demonstrated that there were patterns among subgroups, which I summarize in Figure 2.

[84] Yo más no lo quiero cobrar, por más que sea natural…Esa es mi referencia, sí, lo pongo al mismo precio, a mí me sirve." (Queso del Campo)

Figure 2: Food insecurity pillar with subgroups



DISCUSSION

Organic and agroecological farmers toward each end of the food insecurity continuum often spoke about each other in a divisive, dualistic way that was rooted more in reductive perceptions of capitalism vs. socialism than it was grounded in practice. Yet ethnographically digging into the realities of how all alternative farmers sought to balance their business and social goals in practice supports Hinrichs (2000) point that in alternative agriculture every farmer embodies a mix of market and social embeddedness. Still, there were clear patterns in unionized and solidarity farmers' support for the social goals of food sovereignty and just labor practices, which contrasted sharply with local and export organic farmers neglect of these issues.

Organic farmers' disregard of these social movement goals does not mean, however, that they acted purely instrumentally rather than being driven by values. As the next chapter reveals, these same organic farmers placed a high priority on ecological values, and according to certain

indicators of particular environmental goals, were more (ecologically) values-driven than many agroecological farmers. But rather than assuming that subgroups of alternative farmers prioritize different social and environmental goals equally by putting them on a single continuum of corporate-driven organics to movement-driven agroecology (as was Holt-Giménez and Wang's (2011) approach), in this chapter I compared subgroups on a single social issue (food insecurity), and in the following chapter I do the same for three key ecological issues.

A main goal of this chapter was to distinguish subgroups of alternative farmers rather than to assume them by using the discourses they use for themselves. Ethnographically tracing their economic and social networks revealed four subgroups of agroecology and two subgroups of organics. It is perhaps unsurprising that agroecological farmers had a much more varied set of practitioners than organics because organics are legally defined by the organic standards, fueling agroecology to become an umbrella term for all alternative farmers who are not organic. Similarly distinct from other agroecological farmers are biodynamics, which like organics, is defined by its own certification system. The organic certification system and biodynamics' rigorous ecological and spiritual practices (even if they are not certified) make for a high bar of entry to these sectors. It should not be surprising, then, to note that the decision-making farmers from these three subgroups were overwhelmingly more likely to have familial wealth, be white, and be men. Exceptions seemed to reinforce this trend of power inequalities in access to these sectors, such as María identifying as a woman biodynamic farmer and having the smallest biodynamic farm of any of the biodynamic farms I witnessed.

The three subgroups not regulated by a certification system – extensive, unionized, and solidarity agroecology – were also stratified by social class, race, and gender. Extensive agroecological farmers were similar to organic farmers in their likelihood of being white men

with access to familial land or wealth. This is unsurprising given the crops they produce. Extensive agroecological farmers by definition seek to apply agroecological principles to large-scale farms, which in Buenos Aires Province are large, flat, plains most suitable to crops like grains, oilseeds, meat, and dairy. These enterprises all required extensive landholdings and capital-intensive infrastructure to be economically viable: capital that marginalized groups were unlikely to be able to access.

In contrast, unionized and solidarity economy agroecological farmers were overwhelmingly poor, farming small, usually rented plots for labor-intensive crops like vegetables, which had a low economic bar of entry. These farmers were overwhelmingly of Bolivian and/or Indigenous descent, long subjected to racism by white Argentinians. Unionized and solidarity economy agroecological farmers were also overwhelmingly more likely to be women, a trend we see with food sovereignty-focused agroecological movements elsewhere in Latin America (Siliprandi and Zuluaga 2014). Unionized and solidarity agroecology organizations like the UTT and Quinta Solidaridad – among others – had entire programs dedicated explicitly to gender equity: something I did not observe in any of the other types of alternative agricultural organizations.

The main differences between unionized and solidarity agroecological farmers were their histories and social networks. Solidarity agroecological farmers began joining that movement as individual entrepreneurs and activists forming a mosaic of small, independent organizations in reaction to crises of capitalism and democracy: the dictatorship, neoliberalism, and the 2001 economic crash. Unionized agroecological farmers were existing conventional vegetable farmers organized in the massive UTT labor union, which began its agroecology program in 2013, as one of its many initiatives. These two subgroups had similar politics and were the only subgroups to

explicitly and consistently contest the neoliberal capitalist food system. At the time I was conducting fieldwork in 2017-2020, I did not observe any social ties between these two groups, but that was early in the history of the emergence of unionized agroecology in Argentina and it remains to be seen how this subgroup will develop in the future.

That there were correlations across these six groups in terms of socioeconomic position and privilege, food supply chain, food crops, and access to the state supports studies that find that alternative food systems reproduce social inequalities (Leslie and White 2018; Leslie, Wypler, and Bell 2019; Siliprandi and Zuluaga 2014). These findings, coupled with the organic certification's neglect of social issues, points to the need to forefront identity-based concerns in alternative food activism if accessing toxin-free food is ever to become a reality not just for consumers, but also for farmers.

Furthermore, that the organic and biodynamic certification systems are international and that the vast majority of Argentina's organics are shipped to the Global North reveals how the social politics of alternative food systems in the Global North reproduce inequalities in the Global South. Because certified organic food consumption *and* production is out of reach economically for most Argentinians, by design (Guthman 2004 [2014]); because the standards do nothing to address social issues like labor; and because the organic industry dominates among other alternative food systems, the Global North's consumption of imported organics reproduces social inequalities in alternative foodscapes in the Global South. These social implications reflect longstanding patterns of the broader contemporary capitalist food regime (Friedmann 2005; McMichael 2009). As such, organic export farmers are no more culpable for reproducing social inequalities than conventional export farmers, and reducing toxic exposures across Argentina's vast landscape is unquestionably a social good. And when we consider how the Global North

maintains an economic stranglehold on the Global South through global agricultural trade policies that severely limit all farmers' capacity for action (Gonzalez 2006), placing blame for these patterns in social inequalities on *any* type of farmer is misguided. At the same time, because the organic industry is global and because it interacts and competes with local agroecological alternatives everywhere, we will continue to see the reproduction of social inequalities and politicized splits in alternative food systems around the globe unless the organic certification system forcefully adopts measures to counteract social inequalities, such as labor standards.

CONCLUSION

Adopting social standards and programming in alternative food systems is not a novel idea. This study has shown examples of this, but only when women, poor, and farmers of color have had a seat at the decision-making table, as in Argentina's solidarity and unionized agroecology organizations. The most marginalized groups in Argentina's alternative agriculture umbrella were those who were most likely to adopt a justice perspective on food security – for both consumers and producers – through the principle of food sovereignty. The most privileged took the corporate route to food security, stressing individual choice and consumer education over a critique of the structural conditions that reproduce the fundamental cause of food insecurity: poverty. In between these two ends of the food insecurity continuum were farmers who followed localism as a guiding principle, a politically flexible principle that does not necessarily critique inequality within or beyond local communities, which vary drastically in their politics and power relations (Winter 2003). Ethnographically distinguishing subgroups of alternative farmers helped us see beyond portrayals of alternative agriculture as either a unified group resisting industrial

agriculture or dualistically divided between capitalist organics and the socialist rest. In this case, differences in the alternative food supply chains farmers sold into correlated not only with the crops they grew, but also with their social and economic privilege or marginalization, access to state benefits, and market to socially embedded strategies related to food security. This study suggests that expanding alternative agriculture in a way that combats social inequalities would be aided by adopting food sovereignty as a guiding principle because it demands socially embedding the process of making decisions about food supply chains, necessary for reorienting the power relations along the supply chain that reproduce inequalities in alternative agriculture.

Chapter 3 – The alternative agriculture house: Movement building for tackling toxics, biodiversity loss, and the climate crisis

INTRODUCTION

The alternative agriculture movement's main environmental goal has been eliminating toxic exposures, but it is also posed to address two other existential ecological issues of industrial agriculture: biodiversity loss and the climate crisis. There are three main political economic challenges to addressing these three ecological goals. First, as businesses in capitalism, alternative farms always act with a mix of market-driven interest and environmental movement-driven objectives (by virtue of using "alternative" practices) (Morris and Kirwan 2011). Second, certification systems financially reward farmers for complying (only) with the particular goals mandated in the certification standards, which in the case of organics address toxics, but do not necessarily address biodiversity and the climate (Englund and Berndes 2015; McGee 2015). Third, certification systems' model of minimum standards creates a "race to the bottom" rather than incentivizing farms to continually improve ecological practices (Guthman 2014 [2004]). Building an agricultural economy that addresses all three ecological goals demands identifying the varying interests within the alternative agriculture movement and the power relations that systematically promote certain outcomes and hinder others.

In this chapter I ask, how do subgroups of Argentinian alternative farmers differ in their strategies for addressing the three core ecological challenges of alternative agriculture (toxics, biodiversity loss, and the climate crisis)? How do they interpret each other's prioritization of these three environmental goals? What do the power relations between them reveal about movement building toward these goals? For each goal, I derive qualitatively observable indicators for agricultural practices that vary on continuums from market to ecological

embeddedness (Morris and Kirwan 2011). To reveal the variation in alternative farmers' strategies for addressing these goals, I compare where different types of alternative farmers fall on these three continua. I then discuss the relationships between these continua, building a model ("the alternative agriculture house") to explain the political economic tendencies that affect movement building toward certain ecological goals and hinder advancement toward others. The alternative agriculture house identifies the roles of social movements and the state in alternative agriculture economies, and in doing so reveals opportunities for them to reorient how they exert their power toward particular ecological goals.

Argentina is an important place to study this topic because of the severity of its ecological challenges coupled with the robust and varied responses by alternative agriculture subgroups. Accelerated by neoliberal policies, global agribusiness has wreaked ecological devastation on Argentina in these three realms (Bilenca et al. 2012; Cáceres 2015; Craviotti 2015; Leslie 2017a; Pengue 2009). At the same time, Argentina is a global leader in certified organic production, with the second most amount of land in organics worldwide (Willer and Lernoud 2017). Furthermore, as the previous chapter demonstrated, Argentina is home to innovative agroecological approaches that offer models for reorganizing alternative food systems beyond the blueprint of organic certification. Thus, like many other countries, Argentina is a case where movements for different types of alternative agriculture are vying to expand in a context that is already dominated by industrial agriculture.

In the previous chapter, I discerned six subgroups of Argentinian alternative farmers according to their economic networks (the food supply chains they participate in) and their social networks (relationships with other farmers, social movements, and the state). For a summary, see Table 1. Whereas in the previous chapter I compared these six subgroups as producers of the

social outcome of food security on a continuum of market to social embeddedness, here I compare them as producers of the environmental outcomes of toxicity, biodiversity, and the climate on continuums of market to ecological embeddedness.

I find discernable trends in subgroups' use of market to ecologically embedded agricultural practices, which correlate with their social and economic positions and power. The most socioeconomically powerful groups tended to grow certified organics (especially for export), rely most heavily on market-embedded practices (which most aligned with their preexisting agricultural systems, capital investments, and worldview), and contribute ecologically primarily by eliminating toxic exposures. The most socioeconomically marginalized groups were the most likely to grow agroecologically (especially at a small scale and in cooperation), resist market-embedded practices (due to economic constraints, aversion to economic risks, and social values), and contribute ecologically primarily by using practices that address biodiversity loss and the climate crisis. Subgroups tended to judge each other's practices based on their own top priority rather than the others', exacerbating politicized divisions between supposedly purely market-embedded organics and socioecologically embedded agroecology. Despite discernable trends between these subgroups in their market and ecologically embedded practices, farmers ranged between these two extremes for each core ecological goal, revealing more variation than their perspectives on each other and common discourse allowed for. Still, the relationship between the legal structure of certified organics and the social structure of agroecology reinforced the trends of toxics as the primary focus, the race to the bottom, and insufficiently rewarding farmers who implement practices that prioritize biodiversity, climate adaptation and mitigation, and food security.

I make three primary arguments. First, a critical barrier for the alternative agriculture

movement to tackle all three ecological goals is addressing how social and economic power and oppression emerge within its own community, because social and economic inequalities mark the divisions between alternative agriculture subgroups and restrict farmers' capacity for implementing ecologically embedded practices. Second, certified organics' top ecological priority of eliminating toxics (usually referred to as an issue of individual consumer health) dominates alternative agriculture's ecological discourse. Focusing on toxics as the sole issue of alternative agriculture exacerbates internal divisions and hinders collective action toward broader ecological goals. Third, these tendencies are structural to the political economy of alternative agriculture much more than they are an issue of individual behavior. To visualize how, I conclude by offering a model – "the alternative agriculture house" – that explains how the relationships between the legal structure of certified organics, the social structure of agroecology, social movements, and the state produce predictable outcomes related to toxics, biodiversity, the climate, and food security. In doing so, the alternative agriculture house offers leverage points for movement building toward structural change in these broader ecological and social issues.

THREE PILLARS: ALTERNATIVE AGRICULTURE'S ENVIRONMENTAL GOALS

Alternative farms are businesses that act with a mix of economic interests and social values (by virtue of being "alternative" to conventional farms). Farms vary in how much they prioritize economic interests and social values, a phenomenon Hinrichs (2000) presents as existing on a continuum of market to social embeddedness. Building on Hinrichs (2000), Morris and Kirwan (2011) illustrate how alternative farms vary in their mix of not only social, but also ecological embeddedness. Morris and Kirwan (2011:328) argue that applying Hinrichs' framework to the environmental realm "suggests that there is a need to establish the relative significance of

ecological relations (vis a vis other rationales for operating a food business, and social and spatial embeddedness) within the development and operation of AFNs [Alternative Food Networks] and how this varies according to the particular food network concerned." Thus, subgroups of alternative farmers selling into particular food supply chains may have different mixes of ecological and social goals that each subgroup tends to prioritize.

In this section, I derive qualitatively observable indicators of market to ecologically embedded agricultural practices related to each of the three core ecological goals. These indicators reveal how subgroups of alternative farmers may act in a more market-driven way for one goal and a more movement-driven way for another.

Food justice and food sovereignty scholars argue that racial, gender, and sexual equity outcomes are also core goals for certain alternative agriculture movements (e.g. Leslie, Wypler, and Bell 2019; Leslie & White 2018; Siliprandi and Zuluaga 2014). I do not make separate continuums for identity-based factors because they pervade each of these three core goals (as well as the social goal of food security, explored in chapter two), as central forces in how power and privilege manifest to influence subgroups' particular mixes of market and ecological embeddedness. Along the way, I highlight examples of where these ecological pillars intersect with vectors of social oppression and resistance. This serves to remind us that while I have framed these three pillars as environmental problems, they are fundamentally socioecological problems in their consequences and potential for change.

Toxics

The hallmark issue of the contemporary organic agriculture movement has been eliminating the use of toxic agrochemicals that industrial agriculture became reliant on in the post-WWII "Green

Revolution." Agrochemical use in the region of this study and throughout Argentina has caused profound toxic contamination in both the environment and in humans (Casadinho and Bocero 2008; LaPegna 2016). Agrochemical exposures are linked to cancer and other health problems in Argentina (do Carmo and Alvarez 2009). They disproportionately impact Indigenous communities and the farmers who apply them in Argentina, who are often also of Bolivian descent (Arizpe and Locatelli 2009).

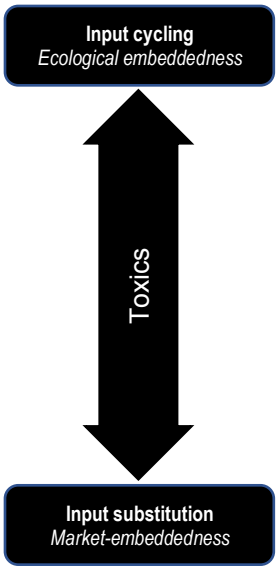
While regulatory systems of complex and dispersed production systems like organics undoubtedly have gaps, the organic certification does offer reasonable assurance that food is not grown with agrochemicals that harm the environment, consumers, and farmers who apply them (Reganold and Wachter 2016). The organic certification system is designed in such a way that allows farmers to replace toxic agrochemicals with more benign alternatives, a process called input substitution. Input substitution is a key mechanism for how industrial farmers can maintain many of their industrial practices, like monocropping, while still achieving organic certification. Because farmers can swap out one commodity input for another without otherwise restructuring (if such an input is actually available), input substitution is an observable strategy for eliminating toxic exposures that does not alter the existing market-driven imperative of industrial agriculture (Altieri and Toledo 2011).

In contrast, agroecological practices seek to reduce or eliminate the need for even benign commodity inputs. Instead, agroecological farmers seek to cycle inputs in an agroecosystem in such a way that renders ecologically extractive external inputs unnecessary. This perspective also sees inputs like pesticides as fixes for the symptoms of an unhealthy agroecosystem; in a healthy agroecosystem plants can ward off many pests and diseases on their own (Lin 2011). To create a healthy system, instead of relying on inputs like synthetic fertilizers, agroecology emphasizes

diversified farming practices across spatial, temporal, and ecological scales, such as crop rotations, cover cropping, composting, intercropping, agroforestry, low- or no-till, genetic variation, mixed crop-livestock systems, riparian buffers, and nearby woodlots (Kremen and Miles 2012). Furthermore, agroecologists see farms as embedded in the broader ecosystem, so they reject the practice of substituting organic-allowable inputs if they are otherwise extractive (Altieri 2009). While toxics is both a social and ecological issue, I map it on a pillar of market to ecological embeddedness because the social consequences are primarily a result of a lack of ecological embeddedness.

Figure 3 summarizes alternative agricultural approaches to toxics as existing on a continuum from market-embedded input substitution to ecologically embedded input cycling.

Figure 3: Toxics pillar



Biodiversity loss

A report that analyzed over 15,000 scientific articles and was approved by 130 countries found that humans have caused an unprecedented acceleration of biodiversity loss in the last fifty years, with 1 in 4 analyzed species (about 1 million) being under threat of extinction in the near future (IPBES 2019: 11-12). About a third of the world's land is in agricultural production, making farming a critical area for preserving biodiversity (IPBES 2019: 12). The diversity of plant and animal species used in agriculture has also declined; over 1,500 of the world's 6,190 domesticated mammal breeds are now extinct or under threat of extinction, with unprecedented declines in the biodiversity of cultivated crops as well (IPBES 2019: 12). These trends are reflected in the region of this study: the expansion of industrial agriculture in the past several decades has negatively affected the abundance and distribution of biodiversity in Buenos Aires Province (Bilenca et al. 2012).

In a comparison of certification systems against benchmark principles of biodiversity, Englund and Berndes (2015: 35) found that the U.S. and E.U. organic standards consider overexploitation and partially consider habitat degradation and modification, but disregard or only partially consider endangered species, habitat destruction and fragmentation, invasive species and GMOs, energy use and greenhouse gas emissions, and research, awareness, and education. This does not mean that certified organic farms do not promote biodiversity, just that if they do it is not necessarily a result of the certification standards, which Englund and Berndes (2015: 26) call "particularly unstringent" in terms of biodiversity. In Buenos Aires Province, Stupino et al. (2007) quantitatively compared plant biodiversity of a certified organic farm with a conventional farm, finding much higher rates of biodiversity on the certified organic farm. Also in this region, Gargoloff, Bonicatto, and Sarandón (2009) qualitatively compared certified

organic and conventional farmers' knowledge of agricultural practices that promoted biodiversity, finding a greater knowledge among certified organic farmers. So, while certified organic farmers may elect to implement practices that are friendly to biodiversity, the certification system does not prevent farmers from growing a single crop in extensive monocultures. Monocultures are a market-embedded approach because the idea behind them is to only plant the crop that has the highest immediate economic return for a particular piece of land, regardless of if doing so negatively affects biodiversity (or long-term economic returns).

In contrast, agroecology emphasizes the use of polycultures through practices like highly diversified cropping plans, intercropping, integrated plant-animal systems, and agroforestry, which all stem from Indigenous agricultural knowledges and technologies (Altieri and Toledo 2011). A meta-analysis of 115 studies comparing conventional to certified organic crop yield reflected the often-cited idea that organic farming is less productive, but also that when the organic system used polyculture (vs. monoculture), the yield gap largely disappeared (Ponisio et al. 2015). Two recent reviews of the literature find that diversified production – as practiced by agroecology – closes the yield gap between organic and conventional farming (Ramankutty et al. 2018; Reganold and Wachter 2016). In Buenos Aires Province, Iermanó and Sarandón (2016) compared the energy efficiency and biodiversity of the same crops grown in mixed-use "family agriculture" and "agricultural business" systems and found that mixed-use agriculture was overall both more energy efficient and more biodiverse. Agroecology represents an attempt to manage agricultural systems to reflect ecological systems by increasing biodiversity as much as possible, within the constraints of a productive farming system.

Figure 4 summarizes alternative agricultural approaches to biodiversity loss as existing on a continuum from market-embedded monoculture to ecologically embedded polyculture.

Figure 4: Biodiversity loss pillar

Climate crisis

Industrial agriculture contributes to about 13% of global greenhouse gas emissions (GHGe) (Ramankutty et al. 2018: 801). To put this in perspective, the world's entire transportation sector is responsible for 14%, industry for 21%, and electricity and heat production 25% (IPCC 2014: 47). Furthermore, agriculture's figure of 13% does not account for industrial agriculture's secondary GHGe effects of land use change like deforestation; agriculture, forestry, and other land use combined are responsible for 24% of global GHGe (IPCC 2014: 47). And while climate change affects regions and agricultural systems differently, it is projected to cause an overall decrease in crop (and fish) yields (IPCC 2014: 15), with certain crops especially affected (IPCC 2018: 236). But by following agroecological principles, agriculture can actually mitigate climate change and help adapt to it, according to the United Nations Human Rights Council's Special

Rapporteur on the Right to Food (De Schutter 2010). There are multiple ways that agriculture has a relationship with GHGe and climate adaptation, but in this chapter I focus on what is perhaps the most critical role: agriculture's capacity to deplete or build soil organic matter (SOM).[85] Importantly, the earth's SOM holds more carbon than the atmosphere and all the world's vegetation combined (Ontl and Schulte 2012). SOM is also central to climate adaptation because increasing it helps soil retain water during droughts and minimize runoff during floods (Kremen and Miles 2012). Increasing SOM is crucial for both climate mitigation and adaptation.

While organic's original guiding principle of "feed the soil" moved in this direction, the organic standards do not necessarily demand that farms grow soil organic matter, despite it being something that is measurable in a standard soil test. Instead, the design of the certification standards has allowed for the "conventionalization" of organic production systems, which may actually contribute to GHGe depending on what practices individual farmers choose to use (McGee 2015). A stark example of the organic standards' inattention to climate change is how corporate interests have successfully lobbied to allow organics to be grown hydroponically – without soil – and still be certified organic in the U.S. (Organic Trade Association 2019), although some U.S. certifiers (e.g. Vermont Organic Farmers) do not allow hydroponics and some countries – including Argentina – have organic standards that are higher than the U.S. in areas like this (Fuchshofen, Hirsch, and Brodtmann 2018). The market-embedded wing of the organic movement sees soil as the hydroponic perspective does: soil-as-medium, something to simply anchor plants. In this view, soil is just another substitutable input that can be replaced

[85] SOM refers to the percentage of any soil that consists of things that were once living, rather than components like minerals that were never living. The use of the word "organic" in SOM is thus different from how it is used in "certified organic" agriculture.

with a purchased commodity. But there are serious divides within the certified organic movement about the role of soil in organics (Gershuny 2017; USDA 2016). Many individual organic farmers make a voluntary choice to utilize agroecological practices that grow soil organic matter.

An agroecological approach prioritizes seeing soil not just as a medium, but as living soil (Shiva 2016). This conception understands soil as an ecological system where microbiology and fungi-plant relationships support agricultural production, and vice versa. Agroecological practices like cover cropping, composting, integrated plant-animal systems, fallowing, and agroforestry build soil organic matter (Kremen and Miles 2012). In addition to cropland and grazing land management, the IPCC (2014: 102) identifies the restoration of organic soils as the most cost-effective climate mitigation option. Below-ground biodiversity and certain plant-fungi relationships increase the nutrient absorbing capacity of most plants and at the same time grow soil organic matter (Pepe, Giovannetti, and Sbrana 2018; Sosa-Hernández et al. 2019). Below-ground biodiversity important for growing soil organic matter is related to above-ground biodiversity. Agroecology's diversification practices including crop rotations, intercropping, border planting, riparian buffers, and nearby woodlots, meadows, and forests increase resilience to extreme precipitation changes (Kremen and Miles 2012: 2). Diversified agroecosystems also reduce pest pressures (which are projected to intensify with climate change as pest ranges change or increase) and suppress diseases (which are likely to increase with warmer winters, although science on climate change's relationship to plant disease is less certain than how we know it will increase pests) (Lin 2011). By seeing agricultural soil as living soil embedded in a broader ecological context, agroecologists use practices that grow soil organic matter, critical for climate mitigation and adaptation.

Figure 5 summarizes alternative agricultural approaches to the climate crisis as existing on a continuum from market-embedded soil-as-medium to ecologically embedded living soil.

Figure 5: Climate crisis pillar

In sum, alternative farmers utilize a mix of market to ecologically embedded practices related to toxics (input substitution to input cycling), biodiversity (monoculture to polyculture), and the climate (soil-as-medium to living soil). The organic certification system offers a verifiable minimum standard that is largely achievable through market-embedded agricultural practices. In contrast, agroecology offers a set of ecologically embedded agricultural practices that are not codified in a set of legal minimum standards, but rather are a set of goals that can always be improved upon to further eliminate toxics, increase biodiversity, mitigate climate change, and adapt to it.

RESULTS

Here, I dissect how six subgroups of alternative farmers vary in their market to ecologically embedded agricultural practices related to toxics, biodiversity, and the climate. I map each subgroup onto the three pillars I derived above. Along the way, I point out where socioeconomic power and privilege impacts subgroups' agricultural choices and capacity for action.

Three environmental goals

Toxics

Of all the subgroups, export organic farmers most fully embraced input substitution as their main strategy for eliminating toxic exposures because this technique was most compatible with their preexisting agricultural context. Along with extensive agroecological farmers, they were the most likely to grow extensive mechanizable crops like oilseeds and grain (and cattle fed that grain). These farmers were often previously conventional growers and had long since made large capital investments in things like machinery. To these growers, using input substitution to transition to organic made more sense than input cycling techniques, which would demand greater changes to their preexisting production system. Organic farmers often used ecologically embedded techniques in addition to input substitution, but many others regularly used input substitution to the full extent that the certifier allowed. For example, in addition to rotations and integrating animals, a farmer from Campo Orgánico used "foliar fertilizers that are on the market…they are always certified organic, otherwise we would not use them because the certifier would not permit us to."[86] Another export organic farmer made a similar statement

[86] "fertilizantes foliares que hay en el mercado…siempre que estén y sean certificados orgánicos, sino no los usamos porque no nos permite la certificadora." (Campo Orgánico)

about organic's minimum standards, but for pesticides rather than fertilizers; "There's a chemical factory where I buy sulfur…and what's permitted, sulfur, copper, or whatever, you're not going to apply twenty kilos, but I think that up to five or three kilos per hectare is permitted…It is following the protocol of organics."[87] Echoing the market-embedded focus of many organic farmers, one extensive agroecological explained that "I use fertilizer that is organic" because "you have to add value to the milk you produce."[88] Several other organic farms "make a soup with guano [bat and seabird excrement]…and send that through the irrigation hoses."[89]

On the other end of the toxic exposures continuum, unionized and solidarity agroecological farmers prioritized input cycling practices to reduce the need for buying any type of input, even those that aligned with organic standards or agroecological values. A main attraction for conventional unionized farmers to transition to agroecology was that eliminating purchased inputs "lowers your costs of production."[90] These farmers' main rationale for input cycling was their resistance to market-embeddedness. Of all the subgroups, unionized and solidarity agroecological farmers were most likely to be economically poor, women, and of Bolivian descent. Their social and economic positions influenced their economic rationale of reducing costs to lower risks, common in peasant agroecological agriculture (Serrano N.D.). Rather than input substitution, these farmers prioritized input cycling practices like composting, cover cropping, and integrated plant-animal systems. And when these preventative techniques

[87] "hay una química y ahí compro el azufre…Y lo que sea que está permitido, azufre, cobre, o sea, no vas a echar veinte kilos, pero creo que hasta cinco kilos o tres kilos por hectárea está permitido…Es seguir el protocolo de lo orgánico." (Santiago)

[88] "Yo uso fertilizante pero que es orgánico" because "hay que agregarle valor a la leche que se produce." (Juan)

[89] "se preparan caldos con el guano…y eso se manda por la manguera de riego" (Conservas Orgánicas)

[90] "te bajan los costos de producción." (UTT)

were not enough, these farmers often made their own pesticides rather than buying them. For instance, solidarity agroecological farmer Lucía uses "garlic and some nettle leaves…some also put in a little bit of alcohol with water…If you see that you have some little pest, you spray a little and they go."[91]

Biodynamic agroecological and local organic farmers used a mix of input cycling and input substitution practices, which corresponded to their socioeconomic and agricultural positions. They occupied a much higher socioeconomic position than unionized and solidarity agroecology farmers, and so had more means to afford external inputs and were less ideologically opposed to participating in capitalist food supply chains (chapter 2). However, like the unionized and solidarity agroecological farmers, they often grew a high diversity of hand labor-intensive crops like vegetables, on smaller plots of land than export organic or extensive agroecological farmers. This agricultural context was perhaps more amenable to input cycling practices like composting (though extensive agroecological farmers argued that such agroecological practices are possible even in large-scale, mechanized systems for crops like grains and oilseeds).

While biodynamic farmers were strictly ideologically against agrochemicals and my farm visits gave no indication that they used agrochemicals, I did observe some using animal feed that would not pass organic certification: a problem for many subgroups. One extensive agroecological farmer told me "the truth is that I couldn't do organic certification"[92] because they could not afford organic animal feed, which is expensive and difficult to source in

[91] "Ajo y con unas hojas de ortiga…algunos le ponen un poco de alcohol también con agua…Si vos ves que tiene algún bichito, lo rociás un poquito y se van." (Lucía)

[92] "yo la verdad que no pude hacer la certificación orgánica" (Queso del Campo)

Argentina. This farmer continued, "It's very complicated in Argentina, because…you're not going to find organic corn. Impossible. Maybe [Campo Orgánico] has it."[93] Indeed, Campo Orgánico was an organization of organic and some biodynamic farmers who primarily grew grains, oilseeds, and meat for export, and one of their primary functions, as one of these farmers told me, was to grow organic soy, corn, and sunflower for seed; "we are reproducing varieties for INTA [the National Agricultural Technology Institute] and for us obviously and for the group."[94] Campo Orgánico also supplied some grain to this local organic farmer from Huevos del Campo, who explained, "we are missing certified organic grain for us to do animal production, we did not have access to that, there had been a little, but the little there was they exported."[95] Huevos del Campo sold both organic and non-certified organic eggs, which they described as "practically the same as organic but without organic grain, we use conventional grains."[96] Like most biodynamic farmers, extensive agroecological farmers like Juan prioritized input cycling whenever possible: "The only input that I buy is feed made from ground corn."[97] Similarly, this solidarity economy farmer raising pastured chicken still required some grain feed: "The feed, for example, is not organic. I can't say that it is organic, because we don't get organic input products here, it's very difficult to get organic inputs in the Province of Buenos Aires. The corn is not genetically modified but neither is it healthily organic, we try to find and look for it and what do

[93] "Es muy complicado Argentina, viste, porque…no van a conseguir maíz orgánico. Imposible. Creo Pampa Argentina tiene." (Queso del Campo)

[94] "estamos reproduciendo variedades para el INTA y para nosotros obviamente y para el grupo." (Campo Orgánico)

[95] "para nosotros hacer producción animal hace falta cereal orgánico certificado, nosotros no teníamos acceso a eso, había poco, lo poco que había se exportaba." (Huevos del Campo)

[96] "prácticamente igual a lo orgánico sin los cereales orgánicos, usamos cereales convencionales." (Huevos del Campo)

[97] "Lo único que compro de insumo es balanceado que es maíz molido." (Juan)

I know, but often we end up with conventional corn."[98] The price premium and lack of supply chains for inputs like organic feed and seeds were key challenges for eliminating toxic exposures in Argentina.

Another contrast between organics and agroecology related to the temporal aspect of transitioning from conventional production. The starting point to be organic was compliance with the certification standards, whereas farmers could enter the world of agroecology from whatever context they were currently in because the goal of agroecology was not to meet legal standards, but to constantly improve practices to be ever more modeled after ecological processes. A member of a solidarity economy agroecology organization noted, "Many of those who are working with us have been in transition for a long time, a long time, and some have already completely stopped conventional production."[99] In contrast, organic farmers in transition had to sell their products as conventional; "It's all a slow process because it takes two years to certify it organic, so at the beginning you have to start with organic production practices, but you cannot [sell it as organic]."[100]

There was also a spatial aspect of transitioning. Export organic and extensive, solidarity, and unionized agroecological farmers were the most likely to have previously worked in conventional agriculture. These groups regularly had parts of their farms that were still in conventional production, with other parts in organic or agroecological production. An export

---

[98] "El balanceado, por ejemplo, no es orgánico. No puedo decir que es orgánico, porque no conseguimos productos de insumos orgánicos aquí, es muy difícil conseguir insumos orgánicos en la Provincia de Buenos Aires. El maíz no es transgénico pero tampoco, el maíz no es sanamente orgánico, se trata de conseguir y de buscar y qué sé yo, pero muchas veces le caemos al maíz común" (Quinta Solidaridad)

[99] "Muchos de los que están laborando con nosotros igual ya están en transición hace mucho tiempo, hace mucho tiempo, este, algunos ya dejaron completo la producción convencional" (Quinta Solidaridad)

[100] "Son todos procesos lentos porque lleva dos años certificar orgánico, por lo tanto al principio uno tiene que empezar con las prácticas de producción orgánica, pero no puede" (Campo Orgánico)

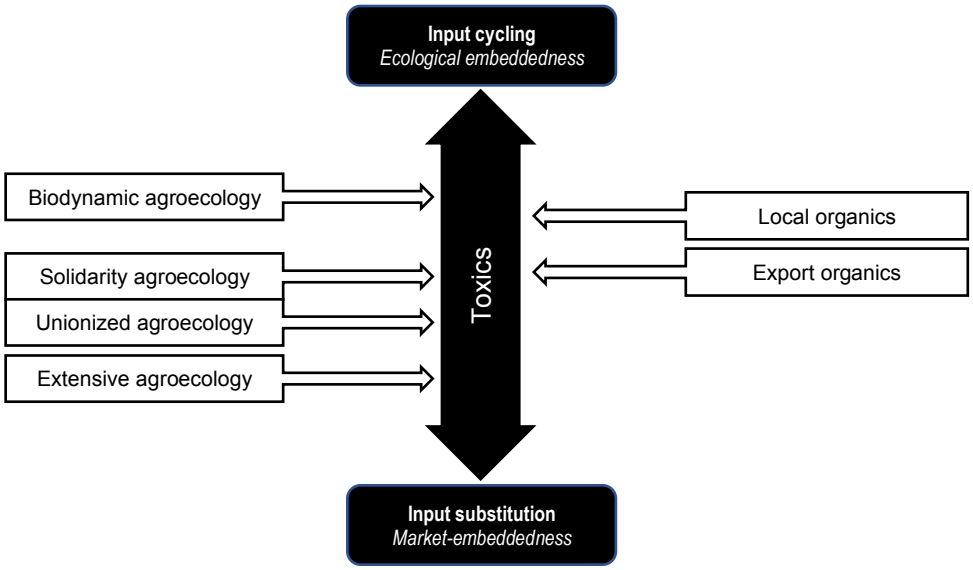
organic farmer explained, “the farm is made up of two businesses, one conventional that has nothing to do with the organic part, the organic part is physically in the same place and they are separated.”[101] Similarly, a solidarity economy market bought from “Bolivians who are growing conventional food that they bring to the Central Market, and on the other hand produce agroecologically in another space on the land.”[102] These two subgroups of farmers both often came from conventional agriculture and were still in the process of transitioning, even though they came from very different socioeconomic positions. The key difference was that export organic and extensive agroecological farmers were most likely to have been conventional farm owners whereas solidarity and unionized agroecological farmers were mostly hired labor on conventional farms. I did not observe biodynamic agroecological farmers or local organic farmers splitting their farms between conventional and alternative production.

Figure 6 summarizes subgroups’ approaches to toxics, from market-embedded input substitution to ecologically embedded input cycling.

[101] “el campo se formaron como dos empresas, una convencional que no tiene nada que ver con la parte orgánica, lo orgánico físicamente están en el mismo lugar y están separadas.” (Campo Orgánico)

[102] “Bolivianos que están trabajando en lo convencional y les llevan al Mercado Central y por otro lado, en un espacio dentro de su tierra producen agroecológico.” (Quinta Solidaridad)

Figure 6: Toxics pillar with subgroups



All alternative farmers prioritized eliminating toxic exposures and most believed in the need for some sort of verification system. Organic farmers rightfully saw organic certification as the available method that could most verifiably assure agrochemical-free food. But the economic barriers to organic certification were deep and tied to land and credit access, as we will explore in the next chapter. Certified organic farmers came from a socioeconomic position where they were able to afford expensive inputs to replace toxic industrial input equivalents. This approach – input substitution – relied on accessing inputs through markets. In contrast, agroecological farmers tended to avoid purchasing inputs on markets (they were often not in an economic position to do so), instead relying on producing their own inputs from the farm, whenever possible. This approach – which I have called "input cycling" – is a more ecologically embedded approach than input substitution because it does not rely on extractive industries and instead brings farms closer to a "closed loop" system. I place certified organics in the middle of the

toxics continuum because input substitution is a market-embedded approach, but the certification standards ensure a minimum legal standard that prevent organic farmers from using practices that are as ecologically dis-embedded as conventional production. The organic standards do not necessarily promote input cycling, but many certified organic farmers used some input cycling techniques in their production practices.

Biodiversity loss

When we look at toxic exposures as the singular goal of alternative agriculture movements, it appears that certified organics are the most ecologically friendly. However, when we look at other core goals, like biodiversity, other subgroups emerge as leaders.

Farms that grew large-scale mechanizable crops like oilseeds and grains – most typically export organic and extensive agroecological farms – had the greatest total amount and percentage of land in monocrop production. Input substitution practices facilitated these farms in maintaining the general production system of industrial agriculture, especially monocropping. Selling into international markets usually meant that profits came by increasing the quantity of production of non-perishable crops. To put it in context, however, these farms went far beyond their conventional counterparts in their efforts to increase biodiversity. Their primary methods of doing so were growing a greater variety of crops and by rotating crops.

Local organic farms, which were more likely to grow perishable crops like vegetables, were typically far more biologically diverse than export organic farms. Part of this is due to scale, as they grew even more varieties on much smaller plots of land. A Provincia Orgánica farmer believed that agroecologists thought “that all we really do is conventional agriculture but

with organic inputs."[103] Yet Provincia Orgánica and other organic farmers usually did not simply rely on input substitution, however: "we use a ton of other practices that conventional farmers don't do: the [conventional] guy who does tomatoes…does tomatoes all year long. We do tomatoes and after we do arugula, spinach, lettuce…we rotate a ton of crops so that later, the following year, we can go back and do tomatoes."[104] This perspective is a reminder that just because the organic certification system is designed around a minimum standard focused on toxicity, it does not mean that organic farmers do not also use practices like crop rotations, which demand that farmers sometimes sacrifice the higher income in the short-term from a crop like tomatoes for lower income generating crops that increase the farm's biodiversity.

Still, a farm's capacity for increasing crop diversity is largely dependent on the food supply chains they sell into, which explains export organic farmers being the most likely to grow in monocrops. Highly diversified farms like in solidarity agroecology needed to have viable ways to sell smaller amounts of a greater diversity of crops, which required a greater diversity of marketing outlets and much more coordination among growers. Quinta Solidaridad, an organization that helped facilitate cooperative marketing of solidarity agroecological food, explained, "The idea, this is the logic, many producers but many sales channels so that I don't have a farm that only delivers me chard…it's very dynamic, first, that this area is arid, and second that it's rotating, so the logic is that [the farmers] can sell to different places."[105] A grand

[103] "que nosotros lo que hacemos en realidad es una agricultura convencional pero con el uso de insumos orgánicos." (Provincia Orgánica)

[104] "nosotros hacemos un montón de otras prácticas que los convencionales no hacen; el tipo que hace tomate…hace tomate todo el año. Nosotros hacemos tomate y después hacemos rúcula, espinaca, lechuga…vamos rotando un montón de cultivo para después, al año siguiente, poder volver a hacer tomate." (Provincia Orgánica)

[105] "La idea, ponele a la lógica, digamos, muchos productores, pero muchos canales de venta para que sea rotativo, o sea, no hay monocultivo, o sea, no tengo, digamos, donde un huerto que solamente me entrega acelga…es muy

challenge for maintaining biodiversity on their farms, she continued, was that "the market with the characteristics of a permanent market for family farming and the social economy costs a lot."[106] Unionized agroecological farmers were seeking to address this problem by building their own entire food supply chains and guaranteeing to buy all of the produce their member farmers grew, even in small quantities. For farms to become more ecologically embedded in polyculture, food supply chains must be redesigned to be ecologically embedded, too.

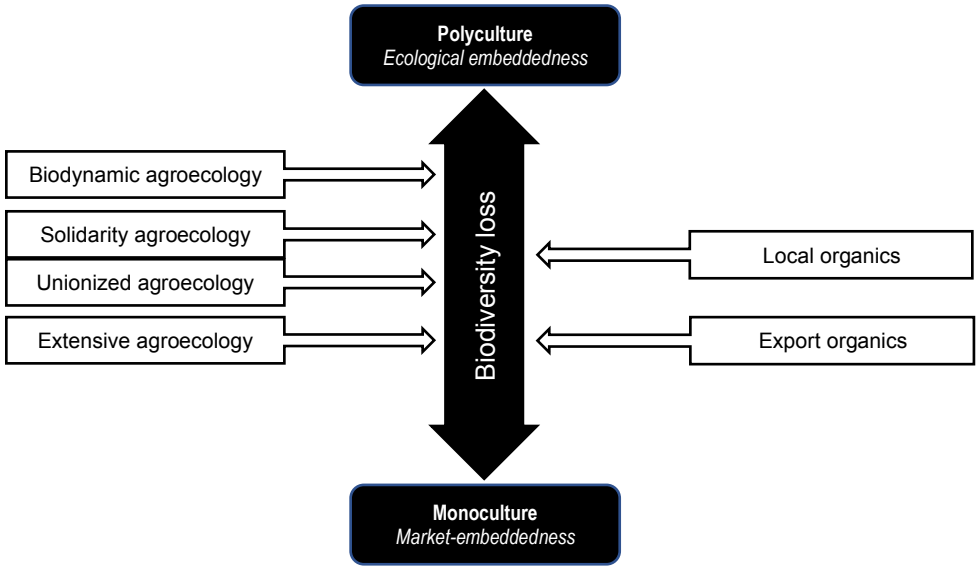
Biodynamic farms tended to be the most biologically diverse because they not only prioritized crop diversity and rotations, but also strategically integrated animals in their cropping systems: one of the hallmarks of the biodynamic credo. While the large export organic and extensive agroecology farms often also used integrated plant-animal systems, the difference was in scale and amount of biodiversity; biodynamic farms integrated animals while growing a greater number of crops on a much smaller scale, increasing overall biodiversity.

Figure 7 summarizes subgroups' approaches to biodiversity loss, from market-embedded monoculture to ecologically embedded polyculture.

dinámica, primero, que esta zona es árida, y segundo que es rotativa, entonces, la lógica es que puedan vender a distintos lugares." (Quinta Solidaridad)

[106] "el mercado con esta características del mercado permanente para la agricultura familiar y la economía social les cuesta mucho." (Quinta Solidaridad)

Figure 7: Biodiversity loss pillar with subgroups



While export organic and extensive agroecological farms were more biologically diverse than their conventional counterparts, they were the least biodiverse among alternative agriculture subgroups. This pattern was mostly a consequence of their focus on mechanizable commodity crops like grains, which required a capital-intensive production system accessible only to the most economically privileged farmers. In contrast, solidarity and unionized agroecological farms operated on a small scale and were highly diverse, which was due to both their ecological values and to these economically marginalized farmers' economic rationale of avoiding the risk of crop failure that came with growing monocrops. Local organic and biodynamic farms were similar in terms of biodiversity, but these groups had more economic privilege and were more likely to be able to afford integrating costly biodiversity strategies, such as integrated livestock systems. I observed biodynamic farms integrating livestock more than local organic farms, which was likely due to integrated livestock systems being part of the guiding ethos of biodynamic

agriculture.

Climate crisis

Eliminating toxins and increasing biodiversity are two important steps for increasing soil microbiological activity that grows soil organic matter, important for climate mitigation and adaptation. Still, it is possible to have toxin-free inputs and above-ground biodiversity in production systems that use soil simply as a medium for anchoring plants (which does nothing to address the climate crisis), rather than fostering a living soil ecosystem that grows soil organic matter.

On the extreme end of the soil-as-medium perspective is hydroponics, which replaces soil with other materials for anchoring plants. While hydroponics could be certified organic in the U.S., they could not in Argentina. As MAPO's president put it, "hydroponics are not organic under Argentinian law…they don't have a connection with the soil, in other words, it's not an option under the law…we're beginning to have hydroponics but they know that it is never going to be organic."[107] Argentina's stricter organic minimum standard was effective in stymieing the growth of a hydroponic industry that would compete with these other types of alternative agriculture but would do nothing to address the climate crisis. In other words, Argentinian organics had a higher minimum standard than U.S. organics in this regard, which kept Argentinian organic producers from ecologically dis-embedding their farms by turning to hydroponics.

The market-driven pull to soilless agricultural systems is also reflected in farmers'

[107] "Para la ley argentina no es orgánico lo hidropónico…no tiene el vínculo con la tierra, o sea, para la ley no es una opción…Empezó a haber hidroponia pero saben que nunca va a ser orgánico." (MAPO)

decision to raise chickens indoors (which generally does not contribute to building soil organic matter) or rotating on pasture outdoors (which does). Huevos del Campo, which sold local certified organic as well as non-certified organic eggs (in similar packaging, but without the organic seal), had both pasture and indoor systems; "we work a little inside the barn and a little outside."[108] This farmer used a 100-meter (328 foot) barn to raise chickens for eggs, next to three other barns on a property "that continue to be dedicated to industrial chicken."[109] Organic farmers used an array of different production systems, some of which built soil organic matter and others of which did not.

One sign that farmers may have a living soil – rather than a soil-as-medium – perspective is whether they practice low- or no-tillage: mechanical disruption of the soil that destroys microbiological activity. However, this must be interpreted with caution because it depends on how a farmer goes about their low-tillage system. As one export organic farmer explained, "We never stopped doing pasture and rotations, things that the majority, 90% of the farms in the area have stopped doing since they started direct seeding and genetically modified soy."[110] Put differently, conventional farmers are now using low- or no-till practices, but only made possible through a GMO production system that requires application of agrochemicals that also destroy soil microbiology. In other words, this approach swaps the method of killing soil microbiology from a physical one (tillage) to a chemical one (agrochemicals); in both cases reflecting a soil-as-medium approach. However, no- or low-tillage is an important part of fostering living soil. The problem with the no-till framing is that – like the organic certification standards – no-till is

[108] "nosotros trabajamos un poco adentro del galpón y un poco afuera." (Huevos del Campo)

[109] "que la siguen dedicando a pollo industrial." (Huevos del Campo)

[110] Nunca dejamos de hacer pasturas y rotaciones, cosas que la mayoría, 90% de los campos de la zona habían dejado de hacer desde que se inició la siembra directa y la soja transgénica." (Campo Orgánico)

defined in the negative (e.g. what you don't do rather than what you do do), and thus susceptible to an "input substitution" race to the bottom like with direct seeding GMOs (for conventional growers). This framing stands in contrast to a living soils approach practiced by agroecologists, which sees soil microbiological activity as something that can be continually improved.

Agroecological farms regularly used practices that built soil organic matter – such as compost and integrated plant-animal systems – even though they did not describe their motivations for doing so as related to climate mitigation or adaptation. For instance, solidarity economy market farmer Lucía used composted plant and animal manure. Marcos used chicken manure. Some practices for building SOM came from an ecological and health motivation to avoid agrochemicals, but other reasons were economic. Agrochemicals were expensive, so input cycling techniques were a way to reduce input costs.

For others, soil building practices were critical because they could only afford to access marginal land that needed heavy amending for it to be productive. Quinta Solidaridad established itself on land that was previously a brick factory:

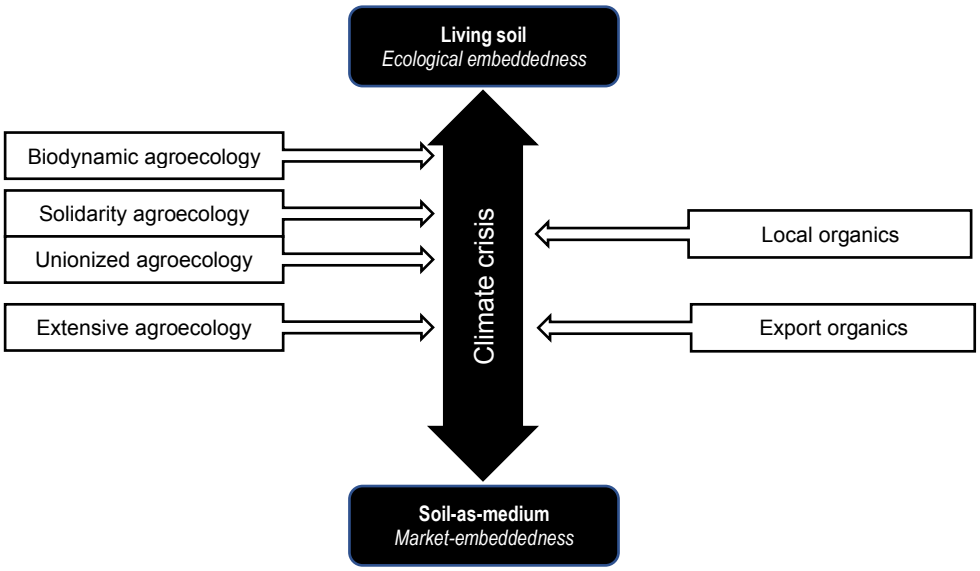
> Argentina makes bricks of gold. Why? Because to make bricks you have to take off the top layer of soil, the most fertile part is used to make bricks…they left all the soil "decapitated," as we say, all of the land decapitated. To do that soil remediation, we had to learn to do it, because besides, how could you tell people "go produce" if the soils are in a disastrous condition? So, when we got here, we began…to plant trees to transform that, that was an idea that a Paraguayan peasant organization gave us, they told us that we were arrogant to think that we could transform the soil on our own, without incorporating trees to be able to transform it and give it vegetation and life. It was also a question of beliefs of the Guaraní…the tree is a very important symbol for them. So, well, we planted trees.[111]

[111] "en Argentina se hace ladrillos de oro. ¿Por qué? Porque para hacer los ladrillos tienes que sacar [diafonía] la capa de arriba, digamos, la más fértil se ocupa para hacer ladrillos…dejaron todas las tierras, nosotros decimos 'decapitadas', todos suelos decapitados. Para hacer esa recuperación del suelo, y teníamos que aprender a hacerlo, porque aparte, ¿cómo le decías a la gente: "produzca" si las tierras son una condición de desastre? Entonces, cuando

Drawing from Indigenous knowledges, an ecological desire to build topsoil that had been extracted by capitalist industry, and an economic need to foster productive soils, Quinta Solidaridad's first job was to plant trees and bring biodiversity to the land. This stood in stark contrast to the trend in industrial agriculture of deforestation to increase arable land.

Figure 8 summarizes subgroups' approaches to the climate crisis, from market-embedded soil-as-medium to ecologically embedded living soil.

Figure 8: Climate crisis pillar with subgroups



Practices that prioritized input cycling and polyculture – like rotations, integrated plant-animal

estábamos ahí, nos empezamos…a plantar árboles para transformar eso, que eso fue una idea que nos la dio la organización campesina de Paraguay, que nos dijeron que nosotros éramos unos soberbios de pensar que nosotros solos íbamos a transformar ese suelo, sino que había que incorporar ahí al árbol para poder transformar y darle vegetación y vida. También por una cuestión, digamos de creencias, los Guaraníes…el árbol es como algún símbolo muy importante para ellos. Entonces, bueno, a plantar árboles." (Quinta Solidaridad)

systems, and composting – built SOM, important for climate mitigation and adaptation. These practices were most prevalent among biodynamic, solidarity, and unionized agroecological farmers, who saw these practices as important ecologically (and sometimes economically), but usually not in terms of their impacts on the climate crisis. Organic and extensive agroecological farmers were more likely to adopt a soil-as-medium approach, enabled by input substitution and certified organic's minimum standard approach to governance. At the same time, Argentina's organic standards prevented farmers from adopting even more market-embedded approaches to the detriment of soil microbiology, such as by prohibiting organic hydroponics.

How subgroups interpreted each other's prioritization of the three environmental pillars

Export and local organic farmers shared a deep pride in having found what they perceived as a win-win between their business interests and eliminating toxic exposures. They spoke about eliminating toxic exposures in terms of individual and environmental health. Capital Orgánica's farmer put it this way; "It's a business that grows, that has its profitability, and in turn, gives us a bit. The extra point is knowing that we are doing something for the community, for ecology. Today our clients have the possibility of eating healthfully, that already is an extra satisfaction to what could be the profitability of a business."[112] Organic farmers primarily saw their work as a business venture and were proud to create businesses that avoided creating toxic harms like those of their industrial counterparts.

Eliminating toxic exposures was the top core goal for organic farmers (and the organic

[112] "Es un negocio que crece, que tiene su rentabilidad, y a su vez, nos da el granito de arena. El punto extra que es el hecho de saber que estamos haciendo algo por la comunidad, por la ecología. Hoy nuestros clientes tengan la posibilidad de comer sano, eso ya es una satisfacción extra a lo que puede ser la rentabilidad de un negocio." (Capital Orgánica)

certification system) and this was the criteria they used to interpret agroecological farmers. Cereales Orgánicos' president reflected on agroecology, "For me it doesn't mean anything, to be brute, crudely. It is a question of faith. The more you believe that it is agroecological, the more agroecological it is going to be."[113] Similarly, Capital Orgánica's farmer said, "Sometimes they take advantage of the public, of the market. There are people that say organic because they believe that they produce organically, but there is nobody to guarantee it behind the scenes."[114] Organic farmers were proud of achieving compliance with organic certification rules, which (despite other shortcomings), strongly address the core goal of eliminating toxic exposures. Interpreting agroecological farmers through the lens of this goal rather than also through agroecology's other priorities contributed to organic farmers perceiving agroecological farmers as being deceptive for advertising their food as an organic equivalent without having to have gone through a verification system like organic certification.

Organic farmers were more open to trusting agroecological farmers if they sold food through direct marketing. A local organic farmer summed up this perspective:

> This is my position: if you know the producer and you know how they farm, well, wonderful, you certify it, you buy it, because you know that they farm without pesticides…If it is not the producer that sells directly, you have to have faith in what you ordered if you don't know the farm. In contrast, if what you sell is organic, there is a certification, there is quality control, there is traceability; so, there's other food security for the consumer…when there is an intermediary, with agroecology, for me, it ends up being a question of faith, nothing more.[115]

---

[113] "Para mí no es nada, para ser bruto, así, crudamente. Es una cuestión de fe. Cuanto más creas que es agroecológico, más agroecológico va a ser." (Cereales Orgánicos)

[114] "A veces, se aprovechan del público, del mercado. Hay gente que dice ser orgánica porque ellos creen que producen orgánico, pero no hay nadie que lo avale de atrás." (Capital Orgánica)

[115] "Mi posición es ésta: si tú conoces al productor y sabes cómo produce, entonces, bárbaro, lo certificás, tú le comprás, porque sabes que produce sin pesticidas...Si no es el productor el que lo vende directamente…confiás en lo que pediste si no conoces el campo. En cambio, si vos lo que vendes es orgánico, hay una certificación, hay un

Organic farmers had somewhat more trust in agroecological producers who sold through direct marketing than agroecological producers who sold through intermediaries. But even local organic farmers rarely sold through direct marketing, which they typically did not perceive as a viable marketing strategy for the amount of production they had or sought.

The context of farmers' starting points is a key difference between organics and agroecology, because farmers' socioeconomic position and privilege directly affected the types of alternative production systems available to them. For example, in unionized agroecology, "almost 90 percent of the growers, and the families, on average, rent one to three hectares,"[116] and so did not have the economic means and land tenure situation necessary to comply with organic standards, as Paula explained;

> For a producer that has two hectares, to certify a small farm as organic is basically unthinkable because, to start, they ask you to have good facilities, dwellings, a barn where you can handle the vegetables, a ton of things that a two-hectare farm cannot comply with based on the fact that they are small producers. And so organics are almost always related to a business with more than 15, 20 hectares in production.[117]

Even before infrastructure, the most basic investment required for organic certification was a long-term land tenure arrangement necessary for demonstrating that the land had been agrochemical free before farmers could earn certification; for two years for animal production and annual vegetables and three years for perennials in Argentina (IICA 2009: 48-49). This

---

control de calidad, hay una trazabilidad; entonces, hay otra seguridad alimentaria para el consumidor...cuando hay intermediario, lo agroecológico, para mí, termina siendo una cuestión de confianza nada más." (Provincia Orgánica)

[116] "casi el 90% son horticultores, y las familias, en promedio, alquilan de 1 a 3 hectáreas" (UTT)

[117] "Para un productor que tiene 2 hectáreas, certificar una quinta orgánica es medio impensable porque, para empezar, te piden buenas instalaciones, viviendas, galpón donde vos puedas manipular la verdura, un montón de cosas que una quinta de 2 hectáreas no las puede cumplir por el hecho de que son pequeños productores. Y que lo orgánico, casi siempre está relacionado a una empresa con más de 15, 20 hectáreas de producción." (UTT)

economic barrier made it exceedingly unlikely that the majority of the farmers who supply Buenos Aires' vegetables – who were overwhelmingly poor, of Bolivian heritage, and women farming rented land – would ever have the means to become certified organic, even if they never used agrochemicals.

Rather than interpreting agroecological farmers' resistance to organic certification as a consequence of socioeconomic position, organic farmers often saw it as a result agroecological farmers' supposed political ideologies or refusal to follow rules. As Cereales Orgánicos' president assumed, agroecological farmers simply "don't way to obey regulations."[118] However, unionized, solidarity, and small-scale biodynamic farmers were developing their own versions of agroecological verification systems at the time of this research. Agroecological farmers did see the importance of building systems to verify the absence of agrochemicals but felt like they needed to create their own systems because of the systemic inequalities in accessing organic certification.

Agroecologists also made assumptions about organic farmers that were barriers to movement building. One of the local organic farmers at Provincia Orgánica reflected on how a nearby university agroecology program never visited her farm because they assumed that organic farmers were conventional farmers who simply used input substitution:

> Here…there is a degree in agricultural engineering, but there is only one course that is agroecology, that before was optional and recently was made mandatory, but it is only one course that a graduate will get from the department, and it's in disagreement with organics…for him [the professor], organic farmers, I don't know, we are a pest…we are ten minutes away from the university and they have never come to visit our farm…and they visit farms that I'll tell you that before were organic and when the smallest certifier disappeared the farms stopped being certified. There have been many producers

[118] "no quieren cumplir normas." (Cereales Orgánicos)

> in the area…that used to produce organically and be certified, and they stopped being certified when APROBA [Association of Organic Producers of Buenos Aires] disappeared.[119]

To make her argument that the agroecologists' disinterest in her farm was ideological, she noted that they often visited other farms similar to hers that were previously certified organic. These farms were no longer certified organic not because of an ideological or agricultural change, but because of a structural political economic tendency in the certification system that disadvantaged small-scale organic producers.

There were four certifiers in Argentina, all of which were private companies that competed to certify the larger farms, which were more profitable to the certifier. Even MAPO's president agreed that the design of the certification system put business interests ahead of movement values in regard to small-scale producers. As he put it, "it's pure business. MAPO did a workshop we put on to promote organic milk, a workshop on milking yards, and the four certifiers were there lobbying and talking bad about the other certifiers to grab [business]."[120] The certifiers were a legal enforcement entity. Because they were privatized, market competition between them stymied MAPO's movement-driven goal of expanding Argentina's organic milk production (which was nearly non-existent at the time of this research).

The privatization of the organic certification system not only interrupted the movement

---

[119] "Acá…existe la carrera de ingeniería agronómica, pero hay una sola materia que es agroecología, que antes una optativa y recién hace muy poquito es obligatoria, pero es una sola materia que la lleva un titular de la cátedra, que esté en desacuerdo con lo orgánico…para él, los orgánicos, no sé, somos una peste…estamos a diez minutos de la Facultad y nunca vinieron a visitar el campo nuestro…y van a un campo de un productor de estos que yo te cuento que antes era orgánico y cuando esta certificadora chiquita desapareció dejaron de certificar. Habían muchos productores en la zona…que producían orgánico y certificaban, y al desaparecer APROBA [Asociación de Productores Orgánicos de Buenos Aires] dejaron de certificar." (Provincia Orgánica)

[120] "es negocio puro. Entonces MAPO hace un taller de lo que hicimos para fomentar la leche orgánica, taller de tambo y están las cuatro certificadoras ahí haciendo lobby y hablando mal de la otra certificadora para agarrar." (MAPO)

driven goals of incorporating new products, but especially of incorporating small-scale producers. MAPO's president explained how only the smallest certifier, Foodsafety, would agree to certify small-scale producers; "when you go to a small farm and you have to ask who certified it, you know that it was Foodsafety…it's like if someone sells to Amazon and to a natural foods store, they are going to pay more attention to Amazon, logically. So the certifiers, the two big ones are in the business of cargo ships, the grain boat, the [oil]seeds boat and they are not going to bother with the small producer."[121] Market to ecologically embedded tendencies existed not only on farms, but along the food supply chain and into alternative agriculture regulatory entities. As private companies, the organic certifiers prioritized their business interests, limiting the incorporation of small-scale farmers, who in this study were more likely to use agricultural practices that addressed biodiversity loss and the climate crisis and come from socially and economically marginalized groups.

Biodynamic farmers had a particular relationship with organic certification because biodynamics had their own certification which required organic certification as a precondition. There were about 30 certified biodynamic farmers in Argentina (Fuchshofen, Hirsch, and Brodtmann 2018: 430). But similar to the barriers to organic certification for farmers with minimal economic means, one small-scale biodynamic diversified vegetable farmer explained, "biodynamic certification is a certification that is super expensive that's made for exporting to Germany, basically. Generally, we biodynamic farmers who work in the local market don't get

[121] "vas a un lugar muy chiquito y tenés que preguntar quién lo certificó, sabés que fue Foodsafety…es como si alguien le vende a Amazon y a una dietética, o sea, le va a prestar más atención a Amazon, es lógico. Entonces las certificadoras, las dos grandes están en el negocio de los barcos, en el barco de grano, barco de semilla y no se van a meter con el pequeño productor." (MAPO)

certified because it is very expensive."[122] Indeed, even the four mid-sized and rather well-capitalized biodynamic farmers I interviewed sold to the local market and were not certified biodynamic.

BUILDING THE ALTERNATIVE AGRICULTURE HOUSE

In this chapter, I found that the most socially and economically privileged subgroups of alternative farmers were most likely to grow certified organics, use market-embedded practices, and prioritize practices that addressed toxicity over other ecological goals. In contrast, the most socially and economically marginalized subgroups were most likely to grow agroecologically, use ecologically embedded practices, and prioritize practices that addressed biodiversity and the climate. Agroecological farmers ranged widely, with biodynamic agroecological farmers using some of the most ecologically embedded practices and extensive agroecological farmers using some of the most market-embedded practices. Subgroups tended to interpret each other according to their own top priorities and through politicized ideas about each other.

By comparing subgroups of alternative farmers on market to ecologically embedded continuums of three core environmental goals – and discussing their perspectives of each other – I make three central arguments:

First, for the alternative agriculture movement to achieve its environmental goals, this study suggests it must prioritize and address how socioeconomic power, privilege, and oppression emerge not only in industrial agriculture, but within its own ranks. These environmental issues are fundamentally social – not only in their causes and outcomes – but

[122] "la certificación biodinámica es una certificación super cara que se hace para exportar a Alemania, básicamente. En general los biodinámicos que trabajamos en el mercado interno no certificamos porque es muy caro." (María)

because social and economic inequalities (1) mark the fault lines between alternative agriculture subgroups, constraining movement building for addressing environmental problems, and (2) restrict individual farmers' capacity for realizing their potential in implementing ecologically embedded agricultural practices.

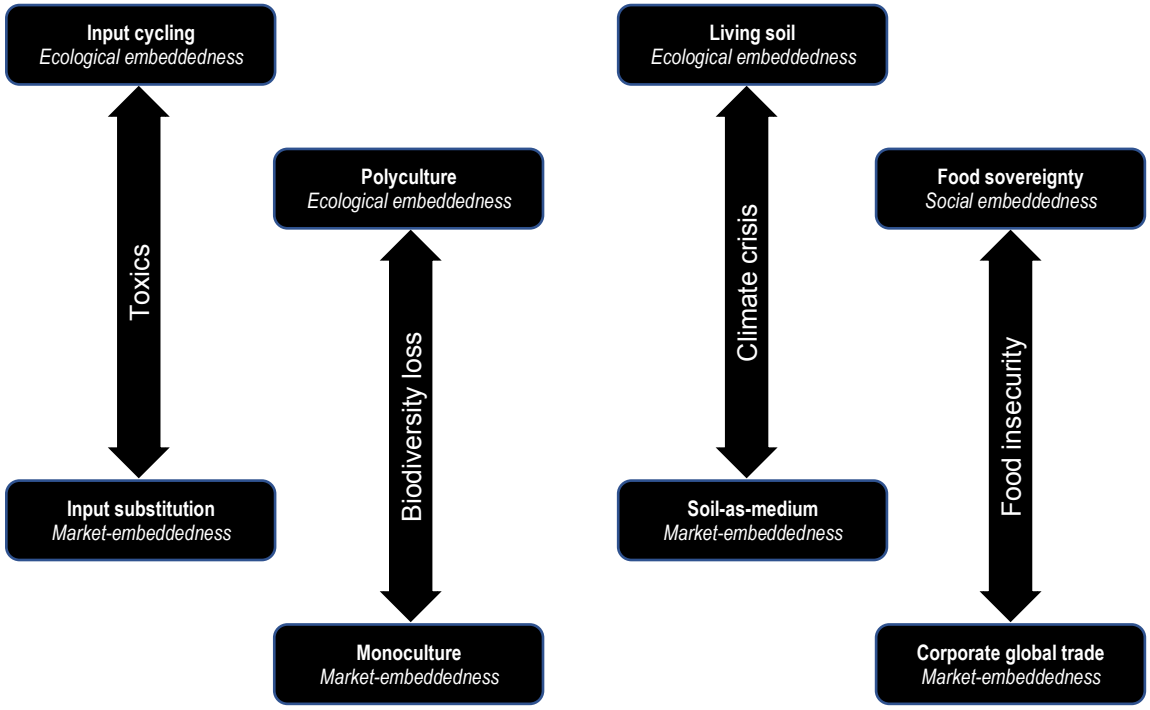
Second, the alternative agriculture movement's environmental goals are broader than eliminating toxic exposures; the movement is also poised to address two other existential issues exacerbated by industrial agriculture (biodiversity loss and the climate crisis). Yet toxic exposures and its impact on individual consumer health remains the primary environmental focus of the certified organic standards and of common discourse around alternative agriculture. Judging other subgroups in the movement against this singular goal rather than against all other environmental and social goals exacerbates divides within the movement and limits progress toward other existential crises.

Third, I have attempted to demonstrate that while there is more variation within organic and agroecological sectors than discourse from all sides usually credits, there are systemic aspects of how organic certification and agroecology are designed, which impact movement building. To explain these structural tendencies, I offer a metaphor I call the alternative agriculture house.

Figure 9 shows four pillars of the house as the continuums of the three environmental goals plus the social goal of food security[123] (explored in depth in chapter two):

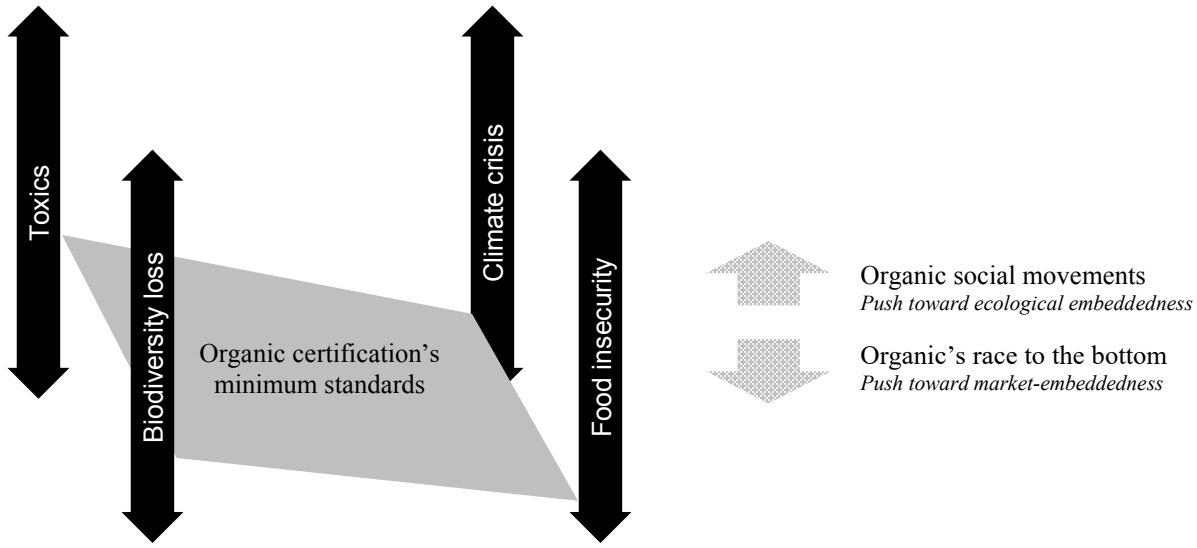
[123] Other social goals – such as democratic decision making and culturally appropriate foods – were part of my conception of food security, which I discussed in the previous chapter. I did not separate the social goals of racial, gender, and sexual justice but have rather discussed how they are part and parcel of each of these other pillars. Whereas in this chapter and the previous one I focused on farmers as *producers* of social and environmental goals, in the next chapter I concentrate on farmers as *consumers* of key resources that they need to produce social and environmental outcomes. Reversing inequalities in access to these key resources – land, labor, credit, and knowledge – represents another set of social goals that I explore in depth in the next chapter.

Figure 9: Pillars of the alternative agriculture house



As this chapter and the previous one have demonstrated, alternative farmers utilize a mix of market or ecologically/socially embedded practices for achieving each of these four goals. Distinct from these subgroups of organic and agroecological farmers are certified organics and agroecology as institutionalized frameworks of alternative agriculture. To incorporate into this model the institutionalized pressures of organic certification and agroecology on the family of alternative farmers, in Figure 10 I first add to the house a floor – organic certification.

Figure 10: Alternative agriculture house with slanted organic floor



I represent the organic certification system as the floor of the alternative agriculture house because it is written in a language of minimum standards. The floor is slanted because organic certification is more ecologically embedded in regard to toxicity than biodiversity and the climate, and is not socially embedded in relation to food security. When the organic certification system places legal minimum standards on the core goals it prioritizes (namely toxicity), it restricts purely market-embedded approaches. At the same time, minimum standards do not incentive farmers to employ ecological practices beyond the certification's rules. A minimum standard approach perhaps makes more sense for the core goal of eliminating toxic exposures, because here success is defined by the *absence* of agrochemicals. For biodiversity, the climate, and food security, however, success can always be increased (i.e., we can always increase biodiversity, soil organic matter, and democratic decision making over what food security looks like). Not only does the organic certification system not address these other core

goals, but a minimum standard approach to them would not incentivize continual improvement in these realms.

By defining success through a minimum standard and offering a price premium for achieving it, the organic certification facilitates entry into alternative agriculture by business and industrial agricultural interests that may be more market-embedded and driven by economic return than ecologically embedded and driven by movement goals. This study has shown that individual certified organic farmers may choose to exceed the minimum standards – and many do – but the structural tendency of the certification system fuels a race to the bottom. Market-embedded actors have an economic incentive to lower the minimum standards, pushing the alternative agriculture house floor down. As Jaffee (2012: 112) puts it:

> By empowering professional certifiers rather than SMOs [social movement organizations] to establish and negotiate the content of standards, the use of certification as a primary social movement tactic increases the potential for co-optation and dilution, in the absence of strong safeguards. It is also likely to alter social movement ecology, as it has in the case of fair trade, by shifting power away from activists to administrators and firms – that is, from the movement to the system and the market.

This tendency is well documented (Guthman 2014 [2004]), and perhaps most visible by the U.S. incorporation of hydroponics in organics (USDA 2016).

Legal minimum standards are critical, and this study supports Jaffee's (2012: 113) argument of "the need for SMOs to consider alternative frameworks for reregulation of global corporations, for example incorporating binding minimum social and environmental standards into international trade agreements or other supra-state institutions." However, I argue that minimum standards must be seen as only part of the solution of achieving alternative agriculture's core goals. One way to think about minimum standards in this context is to consider

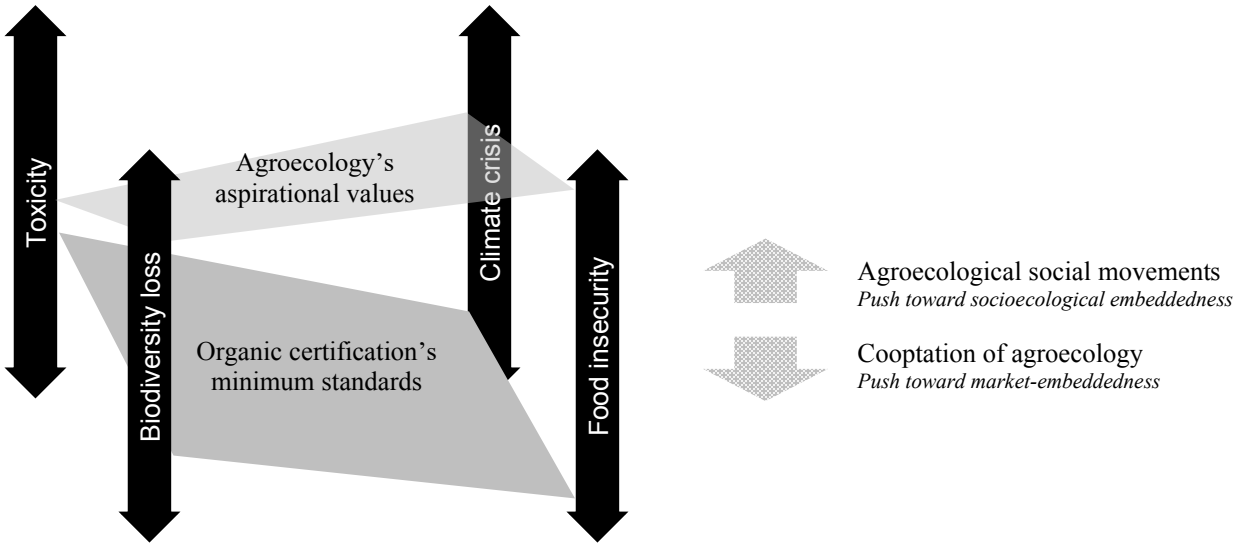
food safety standards, which define minimum practices that *all* farmers must abide by to keep consumers safe. It takes quite the stretch of our collective social imagination not to consider toxicity standards (like those for organic certification) as part of a country's universal food safety standards. If societies have made the choice to implement food safety standards to protect consumers from short-term health risks from things like food-borne diseases, why do they not similarly encompass the long-term health risks associated with agrochemicals? As legal minimum standards in capitalism, food safety laws similarly enable the market-embedded pressures of the race to the bottom, but they seek to change what the allowable bottom is. At the same time, movements put upward pressure on the floor toward social and ecological embeddedness, for example with the ongoing debates about which agrochemicals are permissible or not within national minimum standards, which vary by country. The organic certification system effectively makes a higher minimum standard for toxic exposures, but only for those who can afford it.

At the same time, some certified organic SMOs recognize the pitfalls of a minimum standard approach and also work toward raising the minimum standards toward ecological embeddedness. For instance, IFOAM – Organics International – states, "Organic standards set minimum requirements and not a high target. In certain instances this leads to operations that meet standards, but that neither fulfill the Organic Principles nor progress towards true sustainability" (Arbenz, Gould, and Stopes 2016: 8). In their proposal for an "Organic 3.0," IFOAM calls for both "Continuous improvement toward best practice" (Arbenz, Gould, and Stopes 2016: 3) as well as increasing the minimum standard for climate change and biodiversity (Arbenz, Gould, and Stopes 2016: 19). While the organic movement continues to push in these ecological realms, it has done much less work pushing social goals like labor equity, food

security, and undoing social oppression in how it relates to all of these realms.

In contrast to organics' legally enforceable minimum standard approach, agroecology represents a (currently) non-enforceable aspirational approach by defining a set of ecologically and socially embedded values and working toward them through continual improvement. In Figure 11, I represent agroecology as the roof of the alternative agriculture house because we can always make our agricultural practices more ecologically embedded through improving agricultural practices and we can always become more socially embedded by undoing oppression and strengthening social ties. The roof is slanted to represent agroecology's greater push toward socioecological embeddedness for particular goals.

Figure 11: Alternative agriculture house with slanted agroecology roof



Bell and Bellon (2018) present an emerging agroecological theory that captures general principles (what I have been presenting as social and ecological embeddedness) without

universalizing outcomes. In other words, agroecology's strength lies in its adaptability to local context while working toward general principles of ecological embeddedness and social justice. This alternative agriculture house builds on Bell and Bellon's (2018) idea by drawing attention to agroecology as a process, not an outcome (in contrast to a minimum standard approach). Agroecological social movements are constantly working to refine practices to make its ecologically and socially embedded values attainable (i.e. raising the roof). This is a crucial finding for agroecologists; even agroecologists who do the important work of stressing the social and political aspects of agroecology sometimes conceive of agroecology as more of an outcome, rather than as a process (e.g. Sevilla Guzmán and Woodgate 2013). In contrast to certified organic's strength in the outcomes of minimum standards, agroecology's strength lies in the process of continual improvement toward ecological embeddedness. Therein lies alternative agriculture's local adaptive capacity to address emergent global ecological issues.

At the same time, agroecological farmers exist in a capitalist market reality where they compete with certified organics and industrial food, which need not abide by these higher standards. As Guthman (2014 [2004]) argues, "while it may be the case that the organic movement never meant to alter the entire food system, the unfortunate confluence of regulation-driven rents with existing tendencies of intensification has limited organic's agroecological reach in surprising and profound ways." And as this chapter has shown, farmers' ability to implement ecologically embedded practices depends on their food supply chain's relationship with other food supply chains and how ecologically embedded their own entire food supply chain is, both because farmers are consumers of inputs (e.g. seeds and feed) and because they need viable processing facilities and markets amenable to their style of production. Tai (2018) argues that key leverage points in the governance of global food supply chains are traceability, transparency,

and third-party participation mechanisms. Tools like these are not only important for that particular global food supply chain, but for the other alternative food supply chains that are affected by it.

Furthermore, farmers' ability to access land and ecologically embedded inputs – as well as organic certification – is largely dependent on their socioeconomic position and privilege (explored in depth in the next chapter). And while they may have the most ecologically and socially embedded goals, it is the solidarity and unionized agroecological farmers in Argentina who are the least likely to be socially privileged and consequently have the fewest means to achieve their goals. Their power lies in their capacity for social movement organization, which works to raise the roof and as an informal enforcement mechanism to hold other agroecological farmers accountable to their values. At the same time, because advertising (agro)ecological values is good marketing to ecologically conscious consumers – and because agroecology does not have a legally enforceable definition of what it is – market-embedded actors pull the roof down, making agroecology highly susceptible to cooptation (Holt-Giménez and Altieri 2013). This structural political economic tendency is especially concerning because it stymies agroecology's potential as an ever-increasable counterweight to the existential crises of biodiversity loss and the climate crisis.

What is the role of the state in the alternative agriculture house? To start, it is a myth that the market-embedded ends of these pillars mean the absence of regulation. Rather, the market-embedded ends may be understood as what Bell and Lowe (2000: 289) call negative regulation: "the social structural underpinning of protection from the agency of others; regulation that prevents interference; regulation-from." The absence of minimum standards on toxicity, biodiversity, and the climate is effectively state regulation that allows market-driven food actors

to poison, kill species, and exacerbate the climate crisis. Implementing minimum standards is an example of positive regulation: "regulation that enables interference," in this case, in the lives of farmers (Bell and Lowe 2000: 289). The point is not that one type of regulation is better or worse, but rather that they are both always involved in state-based market economies. Rather than conceiving of minimum standards for things like biodiversity and the climate in agriculture as the absence of regulation, this perspective encourages us to see how this absence is actually the result of an active, ongoing social choice to regulate, albeit in a different way. The role of the state, then, is not a matter of more or less regulation, but rather to decide the parameters of farmers' *freedom to* produce food that affects people and the environment in certain ways, as well as people's *freedom from* particular harms (Bell and Lowe 2000). This necessarily includes the question of ecologically and socially embedded farmers' *freedom from* competing in the marketplace with cheaper but environmentally and socially harmful food.

Seeing regulation in this way helps unpack the political economic tendencies affecting the floor of the alternative agriculture house, but how does this relate to the role of the roof? The floor is tied to the roof through social movements. It is the role of social movements to raise the roof by vying in the public sphere for particular socially and ecologically embedded values. It is also their role to combat cooptation and the race to the bottom by holding up the floor through defining enforcement mechanisms in the language of minimum standards. But raising the floor without raising the roof breeds complacency, which must be avoided in the context of existential issues like the climate crisis. In addition to pushing the state to raise the floor, agrarian social movements define the height and the shape of the roof.

But given the structural tendency of market cooptation of agroecological goals, is it possible to enforce movement upward toward ecologically and socially embedded goals without

using a minimum standards approach? The education world provides a useful model for conceiving of how, because it too struggles with the predicament of assessing both achievement of minimum standards as well as measuring improvement, in a context where mastery is never fully achievable and where everyone is starting from different positions. Educators term assessment of a minimum standard *summative assessment* (e.g. an exam at the end of a term with the purpose of measuring individual performance against an externally determined minimum standard). In contrast, educators also encourage continual improvement by using *formative assessment*: an iterative process of measuring individuals' performance starting at whatever position they are in, and adjusting resources provided and raising the bar against which that individual will be assessed the next time (Dixson and Worrell 2016). It is possible to regulate continual improvement, not just minimum standards. Just because agroecology represents a set of aspirational values does not mean that it is not possible to enforce raising the roof. With an evaluation system akin to formative assessment, quantitative and qualitative measurements of indicators of core movement goals, and sufficient state support, it may indeed be possible to enforce raising the roof – in addition to the floor – of the alternative agriculture house.

CONCLUSION

In this chapter, I built a model of the alternative agriculture house by comparing how different subgroups of alternative farmers use market to ecologically embedded practices related to the ecological goals of addressing toxicity, biodiversity loss, and the climate crisis. The alternative agriculture house reveals how economic and social inequalities mark the fault lines within the alternative food movement, restricting its potential to address ecological and social goals beyond toxicity (and even then, only for the privileged). At the same time, the model identifies how

certified organics' minimum-standard approach to outcomes and agroecology's continual improvement approach to process both have a role to play in building a movement capable of addressing global environmental problems. The alternative agriculture house reveals the roles of social movements and the state in providing counterweights to the market-driven tendencies that put downward pressure on both the minimum-standard floor and the aspirational roof. Perhaps the most important implication of the alternative agriculture house is that it must seek to lose its "alternative" status; if farmers are ever to produce the ecological outcomes that the rest of the world rely on, states and social movements must support all farmers in standing on the same global floor of minimum standards while raising the local roofs of constant improvement toward ecological embeddedness.

Chapter 4 – From markets to social mycorrhiza: Alternative farm viability strategies

INTRODUCTION

Alternative agriculture poses a dilemma for social movement scholars, and the stakes are high. Expanding alternative agricultural practices is central to addressing the global existential issues of the climate crisis, biodiversity loss, toxic exposures, and food insecurity (chapters two and three). By virtue of using "alternative" practices, alternative farms are part of these movements. At the same time, because they are businesses in capitalism, alternative farms must prioritize their own economic viability for them to persist – and for these movements to achieve their social and environmental goals. A farm's economic viability is especially dependent on its ability to access land, labor, credit, and knowledge (Leslie 2019). So, how alternative farmers go about accessing these key resources is particularly important for climate, environmental, and food justice movements.

The clearest route for accessing these key resources for farm viability is through markets. However, as I have argued in chapter two and three, the alternative farmers in my study region who had the broadest set of movement values were the most socially marginalized and had the fewest economic means to pursue market exchange. Yet, "peasant" farmers have managed to access key resources for farm viability through beyond-market means since the dawn of capitalism, leaving scholars with the long-standing "agrarian question" of how (McMichael 1997)? Yet social movement scholars too often romanticize the peasantry (Soper 2016) and neglect how *all* individual alternative farmers simultaneously act with both economic interests (as businesses) and with social and economic values (as part of a movement) (Hinrichs 2000).

How can social movement scholarship better account for this internal mix of roles while explaining beyond-market routes for accessing key resources?

Adding to this quandary is that social movement scholarship on alternative agriculture tends to focus on SMOs (social movement organizations) (e.g. Desmarais 2007; Wolford 2010). SMOs are important, but so too are the often-neglected dispersed social ties that farmers often rely on to access key resources (and many farmers are not part of a social movement organization). These social ties constitute what Day-Farnsworth and Miller (2014: 13) call "relational infrastructure – the relationships between supply chain participants." Furthermore, prominent research on resource flows – usually falling within the commodity chain or systems science literatures – too often neglects the roles of power, inequality, and identity in shaping resource access (e.g. Bair 2009; Folke 2006; Gereffi 1994; Meadows 2008; some notable exceptions include Collins 2003; Enstad 2018; White 2018). This is particularly important because food justice scholars have demonstrated how racial, gender, and sexual – not just class – privilege and oppression organize access to land, labor, credit, and knowledge (Leslie 2019; Leslie & White 2018; Williams and Holt-Giménez 2017).

So, how do alternative farmers vary in their strategies for accessing key resources for farm viability? Do these strategies correlate with farmers' relative social and economic power? And for farmers who access key resources through relational infrastructure rather than markets, under what conditions are these socially embedded strategies effective, and when are they prone to deterioration, cooptation, or burnout?

I address these questions through an ethnographic comparison of six different types of alternative farmers in Argentina (which I described in depth in chapter two and summarized in Table 1). Two of these alternative agriculture subgroups sold certified organics, mostly for

export (IICA 2009). The other four subgroups fell under the broader umbrella of agroecology, promoted by robust agroecological social movements in Argentina (Feito 2013; Leslie 2017a; Sarandón and Marasas 2017). Today, "organic" means a mode of production defined by the certification system – which is mainly designed to offer farmers a price premium for delivering toxin-free food (Guthman 2014 [2004]). In contrast, agroecology is not defined legally but rather is a science, practice, and social movement with broader social and ecological goals. Agroecology emerged in response to the devastation that industrial agriculture brought to Latin America during the Green Revolution (Gliessman 2013: 20). While the legal governance of organics and the social governance of agroecology have important effects on their social and ecological outcomes (chapter three), farmers within each of these two alternative agriculture frameworks vary widely in how much they prioritize business and movement goals. This is why I took a more fine-grained approach in chapter two by distinguishing six subgroups of alternative farmers and comparing them according to their social outcomes, in that case by how they defined and valued food security. In chapter three I compared these six subgroups according to their ecological outcomes related to toxicity, biodiversity, and the climate. Here, I compare the six subgroups according to how they access key resources for farm viability, necessary for delivering those social and ecological outcomes.

I find that the most economically and socially privileged subgroups of alternative farmers – organics and extensive agroecology – were the most likely to use market-embedded approaches to access land (market purchase or rent; family wealth or inheritance), labor (non-laborers as decision makers; family as managers, not laborers; high-capital mechanization), credit (family wealth; banks), and knowledge (top-down processes; consultants). In contrast, the least privileged subgroups – solidarity and unionized agroecology – most often used socially

embedded strategies to access land (land reform; values-based gift), labor (laborers as decision makers; family as manager-laborers; low-capital mechanization; worker cooperatives and unions; social programming for workers), credit (family labor (vs. wealth); government social and environmental programs; non-profit microcredit), and knowledge (horizontal processes; farmer-to-farmer gatherings). Biodynamic agroecological farmers regularly used a mix of market and socially embedded strategies to access key resources. Subgroups who used the most market-embedded approaches were the same subgroups who had the narrowest set of social (chapter two) and environmental (chapter three) priorities. Subgroups who had the broadest social and environmental priorities had the least economic means to realize them. At the same time, these marginalized subgroups used creative socially embedded strategies to access key resources necessary for farm viability and realizing their social and environmental priorities.

I conclude by offering a metaphor for how the social relational infrastructure of certain agroecological farmers works to enable access to key resources. Using the ecological concept of mycorrhiza as a way to visualize particular social networks, social mycorrhiza describes how actors who simultaneously have market interests and movement-based values access resources through social relational ties. This metaphor highlights cooptation – when economic interests are likely to prevail over social values – and burnout – when economic viability unsustainably takes a back seat to movement priorities. For social mycorrhiza to keep these economic interests and social values at their optimum balance for realizing movement goals, actors must trust that their counterparts will act in accordance with both their interests and values, over time (Bell 1998). Social mycorrhiza describes the social relational infrastructure of agroecological economies.

I argue that alternative farmers with the narrowest set of social and environmental goals (organics and extensive agroecology) were most likely to access key resources through market

mechanisms, enabled by their socioeconomic privilege. In contrast, alternative farmers with the broadest set of social and environmental goals (unionized and solidarity agroecology) were most likely to access key resources through trust-based social ties (social mycorrhiza) as a resistance strategy to their experiences of marginalization. These agroecological farmers then had to compete in the alternative – and ultimately the conventional – food market, revealing a central structural disadvantage for farmers working to realize alternative agriculture's broadest movement goals. These power relations in alternative agriculture economies suggest the need for state intervention to facilitate equitable access to key resources, necessary for realizing alternative agriculture's potential to deliver public social and environmental goods. At the same time, farmers and activists are working toward movement goals by building social relational infrastructure amongst themselves while also extending that mutualistic social mycorrhiza into the state.

LITERATURE REVIEW

Market to socially embedded approaches to accessing key resources

The contemporary alternative agriculture movement grew up in an era of neoliberal globalization, mirroring social movements during the time that shifted their focus from attempting to make change though the state to doing so through the market (Jaffee 2012). Reformist alternative food activists did not object to neoliberalism's focus on private power and governance (Holt-Giménez and Wang 2011); neoliberal ideologies imbued alternative food movements' own strategies for change (Alkon and Mares 2012; Leslie 2017a). The neoliberal approach to alternative food supply chain governance is clearly exemplified in certified organic's approach to regulation (Guthman 2014 [2004]); Jaffee and Howard 2010; Raynolds 2004), with,

for instance, all of the certifiers in Argentina being private companies (chapter three). Argentina, like other Latin American countries, simultaneously saw the rise of the anti-neoliberal conception of alternative food under the banner of agroecology and food sovereignty (Altieri and Toledo 2011; Carballo 2018). While there are clear differences between corporate and anti-neoliberal capitalist groups' approaches to alternative food (chapters two and three), scholars and practitioners sometimes go too far in either glossing over these differences by depicting a unified alternative food movement or portraying a bifurcated capitalist organics/socialist agroecology (chapter two). In actuality, all of these alternative food entities utilize mixes of capitalist market and non-capitalist practices (Leslie 2017a); what Hinrichs (2000) characterizes as a continuum from market to social embeddedness.

Whereas most of the literature exploring this tension between market to movement-driven approaches to alternative agriculture focuses on things that activists want farmers to avoid (e.g. toxic pesticides), here I focus on farmers' market to movement-driven approaches to accessing the things they need to be viable as alternative farms. The key resources that make or break farmers' economic viability are land, labor, credit, and knowledge (Leslie 2019). Polanyi (2001 [1944]) calls land, labor, and money (what I reframe as credit)[124] "fictitious commodities." Jessop (2007) argues that knowledge is also a fictitious commodity. Buying and selling these resources as commodities on markets breeds social inequalities and environmental degradation because markets value economic competition and concentration over the social and environmental value that these particular resources bring to communities. This chapter takes

[124] Polanyi themself was ambiguous about the distinction between money and credit in their theory of fictitious commodities, which is important for political economic theory (Jessop 2019), but not for this chapter. For a discussion of the importance of credit to agriculture, the historical expansion of the credit system into agriculture, and credit as a fictitious commodity, see Henderson (1998).

what key resources farmers need for economic viability as its starting point and instead investigates *how* subgroups of organic and agroecological farmers access these resources. Farmers may access key resources through strategies that can be categorized on continuums from market to social embeddedness (Hinrichs 2000). They may also use more market-embedded strategies to access certain resources and more socially embedded approaches for others.

Relational infrastructure behind socially embedded approaches to accessing key resources

Farmers' processes for accessing key resources through markets is clearer than how they access them through socially embedded practices, so I use the remainder of this section to unpack how farmers may use social networks to access resources. Using social relations as a central strategy for farm viability is not unique to any one group of farmers (Rissing 2016). Rather, what Day-Farnsworth and Miller (2014: 13) call "relational infrastructure – the relationships between supply chain participants – is at the core of any supply chain or distribution network." Deserving further attention is (1) how farmers may build relational infrastructure through dispersed social networks; (2) how the social networks farmers activate to access key resources are constrained by social position and worldview; (3) how resource flows within these networks are affected by simultaneous economic interests and movement values; and (4) how historical power and identity relations affect each of these three processes.

Relational infrastructure in food systems exists far beyond formal organizations, yet researchers who consider the social side of alternative agriculture like agroecology (e.g. Desmarais 2007) and organics (e.g. Obach 2015) tend to focus on social movement organizations. This is an important approach because organizations may be a locus for change in alternative food systems, but here I place my attention on farmers' dispersed social networks

because their socially embedded strategies for accessing key resources may or may not come through a social movement organization. Diani and Mische (2015: 310-311) point out that co-membership in organizations is just one type of movement tie, and identify three others: direct relationships, co-presence at events, and shared projects and practices (ideological or tactical proximity). Farmers may build social relational infrastructure through any of these routes, which may then become the conduit for socially embedded strategies for accessing key resources.

Mische (2009) offers a lens for seeing the process of how different farmer subgroups might use social networks to access key resources. Alternative farmers, like the activists Mische studies, have certain social or economic values they want to realize. But the actual career they pursue – i.e. the type of position they get, and its associated power to enact non-economic values – is constrained by the person's structural position in society (which includes both economics and identity). Mische is interested in unpacking not just the constraints, but the pragmatics: how actors respond to those constraints. They show that actors respond to constraints by activating or deactivating certain social networks. What networks they have and how they choose to leverage those networks in any particular moment is informed by the actor's past experiences. So, farmers' social relational infrastructure for accessing key resources likely reflects the context and power dynamics of the social networks in which they are embedded. To see how alternative farmers use socially embedded strategies to access key resources, it is thus important to pay particular attention to the histories and power dynamics of farmers' social networks, which they may activate or deactivate to access resources. Furthermore, if we see that "social ties are not 'one off' affairs or generated purely situationally, but entail shared histories, expectations, and (often) institutionally supported *logics* of interaction" (Diani and Mische 2015: 309), it is likely

that farmers from different social and economic positions are attracted to particular conceptions of alternative agriculture that reflect the worldview they developed in their social context.

Within any particular social network (subgroup of alternative farmers), under what conditions does social relational infrastructure facilitate access to key resources? When does interest in resource access make these social ties prone to deterioration, or the values ungirding them vulnerable to cooptation? Central to how social relational infrastructure works in agriculture is the issue of alternative farms being simultaneously economic interest-oriented businesses and values-oriented social movement actors. To make sense of this tension, I draw from Bell's (1998) reinterpretation of Tönnies' classic distinction between gemeinshaft and gesellshaft. Here, gemeinshaft refers to individuals' self-interests, which we can see as the economic capacity of individuals to access the resources they are seeking. In contrast, gesellshaft refers to what Bell calls sentiments, akin to what I have been referring to as social and environmental values. Bell's main intervention is that neither a solidarity of interests nor a solidarity of sentiments is sufficient on its own to bring about sustained collective action (action in my case being the growth of an alternative type of agriculture). Rather, collective action is most likely when actors feel both a solidarity of interests and a solidarity of sentiments. For both solidarities to occur together, actors must have trust for each other, because there are usually time delays between the enactment of practices in the realm of interests and in the realm of sentiments. Trust is a sign that an individual believes that another person in the network will act in accordance with both their sentiments and interests in the future, usually based upon past action. For resource flows to be socially, rather than market, embedded, we can look for signs of trust between actors in farmers' social networks. Trust plays a critical role in coordinating food supply chains specifically (Jarosz 2000; Stevenson and Pirog 2008).

Taken together, accessing key resources through markets demands economic privilege and accessing them through socially embedded practices demands a social relational infrastructure of ties based on trust. This points to economics as only a partial explanation of how resources flow among farmers because historical and identity-based power relations shape both economic privilege and trust in social ties. The study of resource flows typically falls either in the realm of systems science literature or economic development scholarship (including commodity chains and fictitious commodities), but scholarship in these fields often neglects the roles of identity-based power relations in organizing resource flows. As food justice scholars argue, for instance, access to the most critical resource for farmers – land (Ackoff, Bahrenburg, and Schute 2017) – is not just a matter of economics, but is heavily influenced by continued historical patterns of racial (Williams and Holt-Giménez 2017), gender (Carter 2017), and sexual (Leslie 2019) exclusion and privilege in land markets. Similar power dynamics exist for accessing the other key resources crucial to agricultural production, including labor, credit, and knowledge (Leslie 2019). At the same time, food justice scholars demonstrate how farmers of color (Leslie and White 2018), women farmers (Sachs et al. 2016), and queer farmers (Leslie 2017b; Wypler 2019) build trust with each other based on shared experiences of oppression and resistance.

Argentina is home to many examples of agricultural social movements that have garnered power in part through social relational infrastructure. For example, in response to the accelerating implementation of neoliberal policies in the 1990s, agricultural, labor, and rural development organizations partnered with farmers to create 144 farmers markets in just fifteen years, called *ferias francas* (Golsberg et al. 2010; Pereira 2007). In these markets, farmers established processes like collectively setting prices to support – rather than compete – with each

other, and movement actors institutionalized many of them by successfully advocating for local legislative support (Colman 2009; Leslie 2017a). The solidarity (or "social") economy movement has roots in response to the 1976-1983 dictatorship, subsequent rise of neoliberalism, and 2001 economic crash, with the intention of redesigning economic exchange – especially around food – to prioritize social and environmental movement goals (Cittadini et al. 2010). Yet even within the solidarity economy movement there are variations in socially to market-embedded action, with women often being the majority of organizers (Foti 2011) and focusing on subsistence while men being more likely to participate in initiatives around building capital (Angulo et al. 2011: 9). These are just several of many examples of Argentinian alternative agriculture movements that have attempted to embed economic exchange in social and ecological relations (Craviotti and Soleno 2015; Palmisano 2018). Furthermore, scholars of these movements highlight the important roles of identity (e.g. Angulo et al. 2011; Siliprandi and Zulaga 2014) and the state in Argentinian alternative food movements (e.g. Caracciolo, Fontana, and de Haro 2016; Catalano and Mosse 2013).

In sum, all types of alternative farms utilize a mix of market to socially embedded practices to access the key resources they need to fulfill their economic goals as independent businesses and their values as actors in a movement. In contrast to the approach of accessing resources through markets, farmers who rely on social relational infrastructure may activate or deactivate social ties in dispersed social networks, which are influenced by social position, history, and shared experiences or worldview. Resources are likely to flow through this social relational infrastructure only when actors trust that the other is acting in accordance with both their economic interests and social values, over time. Past experiences of identity-based oppression may prohibit trust building between marginalized and privileged groups, and shared

experiences of oppression and resistance may be a source of trust between farmers from marginalized groups.

RESULTS

In the following, I compare and contrast how six types of organic and agroecological farmers access the key resources they need to start farms: land, labor, credit, and knowledge.

Land

Export organic farmers most often had extensive landholdings, purchased on the market and passed down through family (usually to the men). Landowners often did not manage or work the land. For instance, the manager of a 1,000+ hectare (2,471+ acre) Campo Orgánico farm explained that the landowner lived in Europe and "he inherited this farm from his family, from his father, and prior to that he did not participate in the farm's administration until he was the only heir."[125] The current manager's family were friends with the landowner, and had their own family farm nearby. When I asked the manager where his interest in farming began, he replied, "generations ago, it's a family thing. My grandfather was a farmer and my father and well, us men. I have a younger brother and three sisters and well, the men are all farmers and we always had the idea of conserving the soil and natural life and wildlife, we were always interested in preserving what we have."[126] There is nothing in the ideology of organics that contests the primacy of market-based land access for the (economically, gender, and racially) privileged.

---

[125] "él es hereda este campo de su familia, de su padre, y pocos años antes de eso él no tenía, no administraba el campo hasta que él queda como único heredero" (Campo Orgánico)

[126] "Uf, de hace varias generaciones atrás, es una cosa familiar. Mi abuelo era granjero y mi padre y bueno, nosotros los varones. Yo tengo un hermano menor y tres mujeres y bueno, los varones somos todos farmers y siempre con una idea conservacionista del suelo y de la vida natural y de la vida silvestre, siempre nos interesó conservar lo que tenemos." (Campo Orgánico)

Seen this way, "preserving what we have" is not just about using organic farming to preserve ecology, but to preserve heteropatriarchal landholdings through the "family farm."

Export organic farmers who did not have family land but who did have enough wealth to buy land sometimes chose to rent, rather than buy, to avoid the transition period necessary for organic certification. Santiago recalled, "I look for someone who has certified land and I rent it…because I think it takes two years to make it [an organic] farm."[127] The transition period is a significant short-term economic roadblock for entering the organic market.

Extensive agroecological farmers came from a similar socioeconomic position as export organic farmers, but had no reason to rent to avoid the transition period from conventional agriculture because they did not seek organic certification. Juan said, "I am a lawyer but I bought the land with my own savings…my grandparents and great-grandparents were farmers."[128] This extensive agroecological farmer lived in Retiro – one of Buenos Aires' wealthiest downtown neighborhoods – and like export organic farmers, drew from off-farm income and familial wealth to access land for his side business in alternative agriculture.

Similarly, local organic farmers were typically in a socioeconomic position to access land through markets. Mateo purchased his particular 15-hectare (37 acre) farm because "we were owners of a property adjacent to the farm. From that emerged the possibility of growing and incorporating those hectares. In fact, today we have 55 hectares [136 acres] more that are

[127] "Yo busco una persona que tenía campos certificados y de aquí y le alquilo…porque parece que tarda dos años en hacerte una explotación." (Santiago)

[128] "Soy abogado pero la tierra la compré con ahorros propios porque ya mi familia tenía [inaudible], mis bisabuelos y tatarabuelos eran agricultores." (Juan)

organic, but not in production, they are fallowing."[129] Similarly, Provincia Orgánica accessed land through a family member who had purchased it adjacent to an airport for his "little plane."[130] Local organic farmers had less land than export organic and extensive agroecological farmers not necessarily because they were less privileged, but because they grew higher value, less land-intensive crops like vegetables, closer to the metropolitan core.

In sharp contrast to the wealthier, whiter, and more male-dominated organic and extensive agroecological social networks, unionized agroecological circles were overwhelmingly economically poor, of Bolivian and Indigenous descent, and largely comprised of women. As members of the UTT, before establishing their agroecology program, they not only advocated on behalf of labor but to help farmers with problems related to land. Almost all UTT farmers rented the ground they were on. "It started in response to the producers, to problems they had on the farm, from problems with renting, problems with natural disasters…before there was the UTT…there was not anyone to represent you."[131] Most of these farmers lived on site in "small wood box homes, because you rent and they're not going to let you build anything from cement, because after three years you might leave, and it wouldn't be worth it."[132] The rental and housing situation put these farmers in a living situation where disasters like "house fires"[133] were more common. UTT farmers accessed land by renting on the market, but at the same time leveraged

[129] "éramos propietarios de un campo lindero al de la huerta. En aquel entonces surgió la posibilidad de ampliarnos e incorporamos esas hectáreas. De hecho, hoy contamos con 55 hectáreas más que están bajo seguimiento orgánico, pero no en producción, están en descanso." (Capital Orgánica)

[130] "avioneta" (Provincia Orgánica)

[131] "Nace para dar respuesta a los productores, a problemas que había en el campo, desde problemas de alquileres, problemas con desastres naturales…antes de que esté la UTT…no había alguien que te represente." (UTT)

[132] "casillas de madera, porque vos alquilás y no te dejan construir nada que sea con cimientos, porque a los tres años te podrías ir, y no vale la pena." (UTT)

[133] "incendio en casas" (UTT)

social ties through a social movement organization to help quell some of the worst side effects of their tenuous market-based land rental situation.

Unionized agroecological and export organic farmers both rented land, but the key difference was that UTT farmers rented because that was their only choice whereas export organic farmers strategically rented to gain a market advantage by circumventing the organic certification transition period. Organic certification was out of reach for UTT farmers not only because of their small scale and economic situation, but because farming on rented land put additional barriers for farmers to obtain organic certification when they lived on site. Paula explained, "We do not have the possibility of being able to certify because, considering the houses we live in…leaving in three years…so the possibilities to certify vegetables are almost non-existent for this sector."[134] Organics' organic transition period and requisite infrastructure was incompatible with UTT farmers' land rental situation, and most could not save the capital necessary through farming alone to buy land on the market.

Several biodynamic farms – which were at least as large and capitalized as the local organic farms – accessed land through values-based gifts from their Anthroposophy and Waldorf school communities. With 200 Jerseys, an eight-cow milking parlor, and distribution of various dairy products in many points throughout Buenos Aires city and province, Tambo Holístico was impressively capitalized compared to other (non-extensive) agroecological farms, but tiny compared to the nearby industrial farmers selling to La Serenísima. In the early 1990s, a widow who had made a fortune through a factory in Germany wanted to make a values-driven

[134] "Nosotros no tenemos esa posibilidad de poder certificar porque, incluso las viviendas en las que se vive…irte tres años…Entonces las posibilidades de certificar una verdura son casi nulas para este sector" (UTT)

investment, and with a group of other Christians dedicated to Anthroposophy, formed a foundation to buy the land for this biodynamic farm. At the time of this research, a cooperative of dairy farmers who studied biodynamics in Germany rented the land from Fundación Tambo Holístico. Like two other rather well-capitalized biodynamic farms I visited, Tambo Holístico accessed land through a social network whose actors trusted that the farmers would live up to their particular values (in this case, based on the credo of Rudolf Steiner, who founded biodynamic agriculture, Anthroposophy, and Waldorf education).

Whereas biodynamic farmers came from social and economic positions similar to organic and extensive agroecological farmers, solidarity agroecological farmers were much more similar to unionized farmers. One solidarity agroecological farmer I spoke with accessed land through a values-based gift, which was not based on a particular credo like with the biodynamic farmers, but on values of environmental conservation. Enabling Sofía to expand her farm from focused on self-consumption to market sales, Sofía accessed land through social ties that began to grow with a conventional pork producer who her husband worked for. Eventually, the producer offered Sofía space to grow food for her family. One day, he told Sofía, "'the day that I die…[my youngest son] is not going to pay for this and I want everything to be for you, the only thing that I am going to ask you is that you care for the trees for me.'"[135] Despite employing certain ecologically harmful practices, some conventional farmers – like this one – cared deeply about the land. The producer chose to transfer his land title not through markets (residential land developers wanted it and tried to prevent Sofía from getting it) nor through heteropatriarchal inheritance to his son. Rather, he transferred land through a social relationship he came to trust

[135] "'el día que me muera…no va a pagar más esto y yo quiero que te quede todo para vos, lo único que te voy a pedir que me cuiden los árboles.'" (Sofía)

over time would deliver on his top priority for his land as he neared his death: continuing his ecological values of preserving the land's trees, rare in that landscape of industrial monocultures.

Most other solidarity agroecological farmers were not so lucky to receive a values-based land gift, but made whatever small pieces of land they could afford viable by building trust-based social ties with other small-scale farmers rooted in agroecological and solidarity economy values. Quinta Solidaridad, a solidarity agroecology organization, started a small farm on soil destroyed by an abandoned brick factory. A Quinta Solidaridad farmer explained, "to go through this was, well, to look at all that we are capable of producing, all of the capacity that exists in this local area. What do we do with this? And from there emerged the initiative of building a cooperative of neighbors, of family agriculture."[136] People would not become "a member of ours until the people began to know and trust in the relationship with her."[137] Similarly, solidarity agroecological farmers located in Parque Pereyra Iraola relied on trustworthy social ties to share tools, market outlets, and other resources to make their small-scale plots economically viable.

Parque Pereyra Iraola was a nucleus of small-scale farmers close enough to the city center that it was only financially possible for solidarity agroecological farmers to access it because it was expropriated from the wealthy Pereyra Iraola family by President Perón in 1949 and made a Biosphere Reserve by UNESCO in 2008 (Clarín 2008). Governments aided in taking the land out of the residential land market and used the power of the state to ensure the land would be used for socially and environmentally embedded purposes. But, as one solidarity

[136] "para vivenciar era, bueno, miren todo de lo que somos capaces de producir, toda la capacidad que hay en esta zona. ¿Qué hacemos con esto? Y ahí sale la iniciativa de construir una cooperativa de vecinos, de agricultura familiar" (Quinta Solidaridad)

[137] "un miembro nuestro hasta que la gente se empezaba a conocer y toma la confianza en relación con ella." (Quinta Solidaridad)

agroecological farmer in Parque Pereyra Iraola reflected on a different political moment, "we had a government that wanted to sell the park, but all of us farmers organized"[138] and were able to keep the land in agroecological agriculture. However, under no government have these farmers been able to actually get the title to the land they farm. They continued:

> we don't have anything directly, they don't charge us either but we don't have a paper that says, I can be here five more years, two more days, nothing. And we put together a project that said, it must be family farming, one farm per family, agroecological production, no building greenhouses on more than 10% of the farm, and some other things that I don't remember. And we assembled the entire protocol and it was never signed by anyone and ended up being nothing.[139]

Through trust-based social ties with other solidarity agroecological farmers in the park, this group organized to offer a blueprint to the state for how to regularize the farmers' land tenure in a way that would have respected the values upon which the park was established. However, governments have not always shared those values – or have not had the power or political will to act on them – and so these solidarity agroecological farmers remained in a tenuous land tenure situation where their investments in their soil, business, and community could be taken from them at any moment.

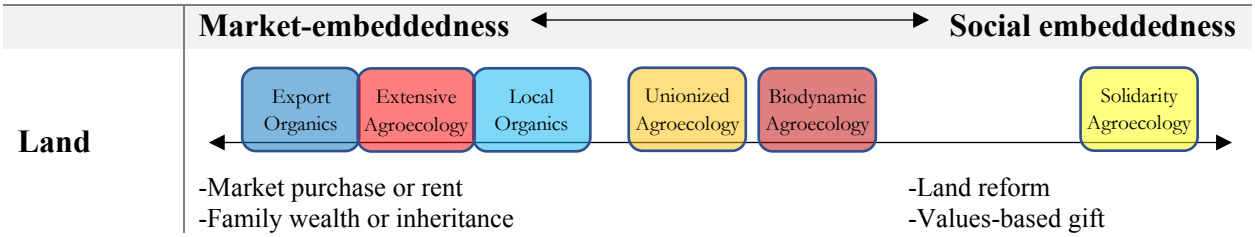
Figure 12 summarizes alternative farmers' market to socially embedded approaches to accessing land.

---

[138] "tuvimos un gobierno que quería vender el parque, pero nos juntamos entre todos los quinteros" (Farmer from Parque Pereyra Iraola)

[139] "no tenemos nada directamente, no nos cobran tampoco pero no tenemos un papel como decir, puedo estar cinco años más, dos días más, nada. Y armamos un proyecto que bueno, la producción tiene que ser familiar, una quinta por familia, producir agroecológico, no hacer invernáculo al más del 10% de la quinta, unas cuantas cosas que no las recuerdo todo. Y armamos todo el protocolo y nunca se firmó nada con nadie y quedó en la nada." (Farmer from Parque Pereyra Iraola)

Figure 12: How alternative farmers accessed land



Export organic, extensive agroecological, and local organic farmers came from an economic and social position where they could access land through the market or family. Some biodynamic and solidarity agroecological farmers accessed land through gifts from wealthier people they had social ties with based on shared spiritual or environmental values. Unionized and solidarity agroecological farmers – the least economically and socially privileged – most heavily relied on trust and values-based social ties to access small pieces of land and make them viable through cooperation.

Labor

"The barrier to entry"[140] to Argentina's organic export market was steep, fueling a situation where the people who made the big decisions for a farm were not necessarily those who actually worked, or even owned, the land. Cereales Orgánicos, an aggregator and exporter of a variety of Cereales Orgánicos, also oversaw production of rice on ten farms encompassing 2,500 hectares (6,178 acres). Cereales Orgánicos' president, Matías, explained, "it's very difficult to enter this business…Because of the quantity of documents and paper that you have to do to certify is very large, very large. So you need a specialist. An engineer, or two. And a farmer is not going to

[140] "La barrera de entrada" (Cereales Orgánicos)

contract one, cannot do it, basically."[141] With a high barrier of scale for entering the export market and a high barrier of bureaucracy for organic certification, export organic farms' decision makers were typically owners of capital who used labor markets to hire farm managers and workers.

On export organic farms like one in Campo Orgánico, the landowner would hire an administrator who, as one of them described, "I go over and look at the physical part of the farm and the things and after we see the jobs and the activities with the person that is in charge of them on the farm and he distributes and gets all of the work done with the rest of the personnel."[142] Similarly, a landowner of an extensive agroecological farm explained, "I do all the logistics. I put in the capital."[143] Export organic and extensive agroecological farms that grew mechanizable crops often relied on "a system of contractors for the agricultural machinery…they have their personnel that are not our personnel, that is contracted. We have some laborers, but they are few." Sometimes these farmers used trust-based social ties to access machinery; "we trade machinery and service with the neighbor,"[144] as one extensive agroecological farmer told me. Most often, however, export organic and extensive agroecological farms relied on market-based labor arrangements of contract labor, mechanization, and decision makers who did minimal, if any, physical labor.

---

[141] "este negocio para entrar es muy difícil…Porque la cantidad de documentos y papeles que hay que hacer para certificar es muy grande, muy grande. Entonces necesitás un especialista. Un ingeniero, o dos. Y un farmer no lo va a contratar, no lo puede hacer, básicamente." (Cereales Orgánicos)

[142] "recorro y veo la parte física del campo y las cosas y después vemos los trabajos y las actividades con la persona que está a cargo ahí en el campo y él distribuye y hace hacer los trabajos con el resto del personal." (Campo Orgánico)

[143] "Yo llevo toda la logística. Pongo el capital." (Juan)

[144] "El vecino con el que nos intercambiamos maquinarias y servicio" (Juan)

While local organic farms were less likely to grow mechanizable crops, they similarly often had "an owner who has a farmer,"[145] as a Huevos del Campo administrator put it. Similarly, Mateo of Capital Orgánica was primarily an administrator: "I participate in the operations-administration side in the office, a few days each week, and the rest of the time you'll find me there, on the farm, overseeing the production."[146] Local organic farms typically grew crops that mostly could not be mechanized, but otherwise organized labor similarly to export organic and extensive agroecological farms.

Organic farms, like local organic farm Capital Orgánica, often accessed management labor through family-based social ties while relying on the market to access physical labor. Mateo started the business with his sister-in-law. Family ties facilitated trusting that a potential business partner would act in both parties' best interests over the long term. That long-term sense of stability on the management level was important for turning their mutual "passion for cooking"[147] into together investing into a company that fifteen years later was doing at least 3,500 deliveries each month. They hired thirty local people – many of Bolivian descent – to do the physical labor on their 15-hectare (37 acre) farm, which focused on high-value greens and tomatoes. For lower-value storage crops and crops that grew much better in other parts of the country, Capital Orgánica contracted with other producers. Developing these contracts with other producers involved an element of relationship building through social ties, but the source of trust came primarily from the organic certification, not the social relationship itself. And there was nothing in the organic certification or in the professed values of organic producers that was

[145] "un dueño que tiene un granjero" (Huevos del Campo)

[146] "participo de la parte operativa-administrativa en la oficina, un par de veces por semana, y el resto, me encuentra allá, en el campo, también, fiscalizando la producción." (Capital Orgánica)

[147] "pasión de cocinar" (Capital Orgánica)

explicitly concerned with labor, so it is unsurprising that many organic producers relied on low-paid physical labor, accessed through markets.

While most of the organic actors I spoke with had little to say about labor relations, some admitted that labor was indeed a blind spot for organics. When I asked the president of MAPO to respond to those who critique organics for ignoring labor, he responded "I totally agree."[148] He continued, "the structure from producer to consumer must be broken…that structure of added value."[149] Most of the price paid for food goes to actors in the middle of the food chain, which he wanted to change because "more must be given to the producer."[150] This assessment certainly highlighted part of the problem, but given that most organic producers were not those who actually worked the land, such a strategy would need additional mechanisms to ensure that this extra income would actually "trickle down" to those hired to work the land through labor markets.

Biodynamic agroecological farms sometimes accessed labor through worker cooperatives and at other times by hiring through the market, sometimes even on the same farm. For instance, Tambo Holístico was a cooperative that aggregated milk from farmers who had their own land, whereas another nearby biodynamic farm was a worker cooperative of five families who shared one piece of land. Tambo Holístico also hired about 25 additional people to work their main landholding, mostly local people who "someone recommends. They approach us, in general because we are looking for someone to do a particular job, and after someone who is more or

[148] "Totalmente de acuerdo." (MAPO)

[149] "hay que romper es la estructura desde el productor al consumidor…Esa estructura de valor económico." (MAPO)

[150] "hay que darle más al productor." (MAPO)

less bordering on organics, Anthroposophy."[151] María, who had a small-scale biodynamic farm, had three men working for her the previous year, all of whom quit. She then hired a local woman of Bolivian descent. When she found out that this person could not read, María made an effort to help her get to school. As these examples highlight, biodynamic agroecological farms often had a mix of market to socially embedded approaches to labor.

The decision makers on solidarity agroecological farms were farmers who actually did physical labor on their farms. Solidarity agroecology revolved around the socially embedded principle that agroecological farming's first priority should be to serve the needs of labor. Quinta Solidaridad aggregated food from solidarity agroecological farmers and sold it in one of Buenos Aires' trendy foodie neighborhoods. Responding to the question of if Quinta Solidaridad was earning what they needed as food sellers, a representative explained, "No, but it's less about what I need, or rather, our strength is family agriculture, family farmers and following the lead of these family farmers and that these family farmers can live from agroecology, that is what's important."[152] The solidarity economy movement was founded on the principles of redesigning the economy to better serve workers, and solidarity economy organizations like Quinta Solidaridad developed mechanisms to do so. For instance, they accepted anything their farmers had to sell, payed for it all up front, and in doing so accepted the risk of not turning a profit on that produce if they had too much of one particular thing or if product did not sell. While other solidarity economy markets and worker cooperatives used mechanisms like these to support

[151] "alguien que recomienda. Se van acercando, en general porque buscamos alguien con un laburo determinado, y después se vaya rayando más o menos con lo orgánico, la antroposofía." (MAPO)

[152] "No, pero no es tanto lo que necesito, o sea, lo fuerte nuestro es la agricultura familiar, familias productoras y hacer el seguimiento a esas familias productoras y que esas familias productoras puedan vivir desde la agroecología, eso es lo importante." (Quinta Solidaridad)

labor, not all did, and I observed several examples of solidarity agroecological markets and farms that did not deliver on the movement's labor values. While solidarity agroecological farmers and organizations overwhelmingly prioritized labor more than organic actors did, realizing those values in the context of an oppressive broader economy was a daily struggle for this subgroup.

There was a widespread perception among organic farmers who accessed labor through markets that, as one producer told me, "it's very difficult to find people to work in the fields" because "people don't want to work in the country…it's a lot of work, you have to work in the rain, you have to work when it's 35 degrees [Celsius – 95 degrees Fahrenheit]."[153] This producer blamed a state food support program for "many people maybe they end up getting used to getting that and living with that during one time of the month and later leave to do what here we call *changas* [odd jobs]…they say that there is no work…In our world there is always work to do."[154]

In contrast to this perspective that "people don't want to work in the country," the UTT saw that employees on organic farms were poorly paid for the hard work required and that many would rather rent a tiny bit of land than be an employee so they could at least be the decision maker on the farm. While the land tenure situation described above put organic certification out of reach for UTT farmers economically, the principal reason the UTT rejected organics was that the certification completely neglected labor concerns, the top social value the UTT prioritized: "we became aware that inside the organic certification, it more or less does not take into account

[153] "es muy difícil conseguir gente para que trabaje en el campo" because "la gente no quiere trabajar en el campo…porque lleva mucho trabajo, vos tenés que trabajar cuando llueve, tenés que trabajar cuando hace 35 grados." (anonymous)

[154] "mucha gente tal vez se terminó acostumbrando a recibir eso y vivir con eso durante un periodo del mes y después salir a hacer lo que acá se le llama changas…dicen que no hay trabajo…En el mundo nuestro siempre hay trabajo para realizar." (anonymous)

human work."[155] The UTT's understanding of organic's relationship with labor was formed not only by what was written in the organic standards but came through the experiences of UTT members they trusted who had worked on organic farms. Paula explained, "We have never known anyone who has had a good experience working on an organic farm and who tells you that it was a good job."[156] In contrast to the larger organic farms, where "in organics it's, almost always, an owner and employees and, generally, poorly payed employees,"[157] even conventional UTT farms were small-scale and the farm workers themselves made decisions about how the farm was run.

As a labor organization, the UTT organized many initiatives to draw attention to problems in conventional farm labor, such as the regular *verdurazo* protests, and at the time of research had just begun developing a new strategy for centering labor concerns in alternative agriculture. For two years Paula had been working on developing an agroecology certification (yet to be implemented). She described,

> First, it's about stopping using poisons, and then it improves quality of life a ton. And inside our certification it includes how people live, if you have employees, if they are poorly paid, if you have children working, what the house is like where you live. It is unthinkable that the organic certifier comes and inspects you, simply coming to see if the production uses poison or not. That's what is important to them, and the cost, no? And here at least, more or less, what we go on is the quality of life of the people that are working on the farms. That's the main difference.[158]

---

[155] "nos dimos cuenta que dentro de una certificación orgánica, por ahí, no se contempla el trabajo humano." (UTT)

[156] "No hemos conocido buena experiencia de alguien que haya trabajado en una finca orgánica y que te diga que es un buen trabajo." (UTT)

[157] "en lo orgánico es, casi siempre, un patrón y empleados y, generalmente, empleados mal pagos," (UTT)

[158] "por primero dejar de usar venenos, y después que mejora un montón la calidad de vida. Y dentro de nuestra certificación se incluye cómo viven esas personas, si vos tienes empleados, si están mal pagos, si tienes niños trabajando, cómo está la vivienda donde vives. Eso es impensable que en una certificadora orgánica venga y te la revise, porque simplemente viene y ve si la producción tiene venenos o no. Eso es lo que importa y el costo, ¿no? Y

Solidarity agroecologists had a similar view; "we do not agree with the organic certification because we politically do not agree with how the organic certification works in this country…they are private companies that visit and the truth is the only thing that they'll say is, 'your product is free from chemicals.' Well now, who produced it? How was it produced?"[159] Solidarity and unionized agroecological farmers had similar perspectives on labor, but unionized agroecological farmers had a much more robust organizing structure for employing strategies to protect labor.

The social ties between UTT farmers were shaped by identity-based factors, which were both informal as well as institutionalized. In contrast to the certified organic and biodynamic agroecological farmers who mostly identified as white Argentinians, "the majority of [UTT] producers here are Bolivians."[160] The UTT had a dedicated "Cultural Space"[161] where, for instance, they taught youth cultural practices like dance. There was an entire "Secretary of Gender, that are colleagues who work on cases of domestic abuse or violence against women, and they also give workshops, sexual education."[162] Several solidarity agroecology organizations also had programs dedicated to gender. While the relationship between each of these areas and agriculture deserves much more attention in its own right, the point for this particular study is

---

acá lo que menos, por ahí, a lo que sí se va es a la calidad de vida de las personas que están trabajando en las fincas. Por ahí, la principal diferencia es esa." (UTT)

[159] "no estamos de acuerdo en la certificación orgánica porque no compartimos políticamente cómo funciona la certificación orgánica en este país…son empresas privadas que van y que la verdad lo único que te dicen, 'tu producto está libre de químico.' Ahora, ¿quién lo produce?, ¿cómo lo produce?" (Quinta Solidaridad)

[160] "la mayoría de acá, de los productores, son Bolivianos." (UTT)

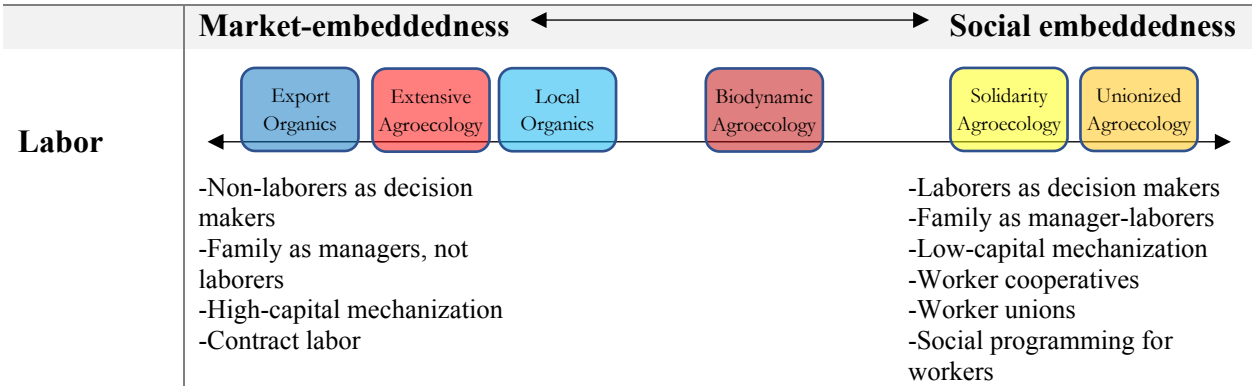
[161] "Área de Cultura" (UTT)

[162] "Secretaría de Género, que son compañeras que trabajan en casos de violencia familiar o violencia hacia las compañeras, y también dan talleres, educación sexual." (UTT)

that the UTT saw identity-based factors as central to their work as an agricultural social movement organization. Teaching dance strengthened group ties, which built trust among farmers. The need for a Secretary to address domestic violence speaks to heteropatriarchal gender relations within family farming units that kills trust between farming (and family) partners. Institutionalizing women-led programs within the Secretary of Gender strengthened gender-based trust between women farmers. These unionized agroecological farmers saw identity-based social programming as central to their focus of improving labor relations in agriculture.

Figure 13 summarizes alternative farmers' market to socially embedded approaches to accessing labor.

Figure 13: How alternative farmers accessed labor



Organic and extensive agroecological farmers used market-embedded strategies to access labor, where non-laborers made the biggest decisions on the farm, and whenever possible used high-capital mechanization and contract labor. In contrast, solidarity and unionized agroecological farms had much more socially embedded approaches to labor, with laborers making the farm's

big decisions, scale-appropriate uses of mechanization, and cooperatives or unions to organize strategies to improve labor relations. Biodynamic agroecological farms utilized a mix of market to socially embedded approaches. All alternative farms relied on families for labor. For organics, family members worked as managers (not laborers), whereas family members on solidarity and unionized agroecological farms did both management and physical labor. While each of these subgroups' version of the "family farm" looked quite different from each other, all of these groups reified the family farm as an ideal foundation upon which to build agrarian labor relations, with little or no critique of the possibility of unjust labor relations existing within family units.[163]

Credit

After farmers accessed land, they usually still needed loans for infrastructure necessary for making the land productive (like irrigation) and to get food from farm to market (like preliminary processing or packing facilities). As a solidarity economy farmer put it, "I would like to put everything in drip irrigation, to not have to spend all day cleaning the irrigation ditch and watching if the moisture arrives to the plant. And then another polytunnel."[164] Farmers relied on credit for infrastructure to reduce labor demands, and those who were mechanized required even more to purchase machinery. As export organic farmer and aggregator Conservas Orgánicas stated, "the point is that there is no credit access in Argentina, it is very difficult to

[163] The only possible exception to this that I observed was the UTT's program on gender relations. They did not critique the family farm as the organizing unit of food production, but did work toward improving gender relations, which were often the backbone of unjust labor relations within family farm units.

[164] "me gustaría poner todo goteo, no tener que estar todo el día limpiando la zanja, mirando, que no le llega la humedad a la planta. Después algún invernáculo más." (Solidarity agroecology farmer)

grow…because it is very difficult to purchase machinery or equipment. Without having credit, you see, it's very difficult."[165] A local organic processor similarly put it, "it is a country that does not have credit…the truth is that we don't have private or public credit. This limits growth a lot."[166]

Export and domestic organic farmers had similar processes for accessing credit, often relying on family wealth to do so. As a manager of Huevos del Campo explained, "I am sure that commercial businesses live from credit, and we have never accessed credit formally…Everything was from personal support."[167] As an extensive agroecological farmer said, "I finance myself."[168] Most organic farmers I spoke with were less direct about their use of personal or family wealth to finance the business, instead saying things like "from 2007 to 2015, the company was growing little by little, and we sold in supermarkets and did some exports."[169] But growing "little by little" is relative; farmers from less economically privileged backgrounds would not have been able to scale up to the degree necessary to access supermarket and export markets in just eight years without outside credit.

Not all organic farmers had personal funds to draw on to finance their business growth. Previously an "agronomist technician"[170] and conventional strawberry exporter, Santiago met

---

[165] "el tema es que al no haber créditos en Argentina, es muy difícil crecer…porque es muy difícil comprar máquinas o equiparse. Al no haber crédito, viste, es muy difícil." (Conservas Orgánicas)

[166] "es un país que no tiene crédito…la verdad es que no tuvimos ni créditos privados ni públicos. Eso limita mucho el crecimiento." (Tofu Orgánico)

[167] "yo estoy seguro de que las empresas comerciales viven del crédito, nosotros nunca accedimos a créditos formales…Todo fue de aportes personales." (Huevos del Campo)

[168] "Me autofinancia." (Queso del Campo)

[169] "desde el 2007 hasta el 2015, la empresa fue de a poco creciendo, creciendo, y vendíamos en supermercados y hacíamos algunas exportaciones." (Conservas Orgánicas)

[170] "técnico agrónomo" (Santiago)

with a company in Spain interested in importing chufa for the drink horchata, "but the condition was that it would be organic."[171] He continued, "labor here in Argentina is a problem…I don't have employees. Everything that I have done, that's why I've done machinery, I alone with machinery do almost everything."[172] But relying on a single crop and importer left Santiago in trouble accessing credit necessary for building custom machinery for this export crop that was new to Argentina. Santiago explained,

> I finance myself with advanced sales because the theme is that I can't get financing here in Argentina…the company forwards me a certain amount of money so that I can produce, but then I have to build machinery, because there isn't any here [for this particular crop], I have to take out the production expenses. And this company that I had contacted this year began to send money and all of a sudden stopped sending me money.[173]

While this particular crop was new, Santiago experienced an old story of going into debt to pay for machinery (to reduce labor) to export a monocrop to a foreign corporation that made decisions in their own economic interests, not out of concern for labor or other alternative food movement goals.

Local organic farms had less trouble accessing credit for polytunnels – which can increase yields while avoiding agrochemicals – through conventional market-embedded means. Mateo explained, "with the greenhouses, we have grown permanently in that. Yes, the truth is, a little, at times, with the help of the banks, and if not with the income from our business, we

---

[171] "pero la condición era que sea orgánica." (Santiago)

[172] "la mano de obra aquí en Argentina es un problema…Empleados no tengo. Todo lo que he hecho, por eso he hecho la máquina, yo con la máquina lo hago casi todo." (Santiago)

[173] "Yo me financio con venta anticipada porque el tema es que no consigo financiamiento aquí en Argentina…la empresa me adelanta una cierta cantidad de dinero para yo producir, pero ahí tengo que hacer maquinaria, porque no hay, tengo que sacar los gastos del cultivo. Y la empresa esta que yo había contactado este año, me empezó a mandar dinero y en un momento me corta de mandar dinero." (Santiago)

reinvest."[174] Similarly, this extensive agroecological farmer from Queso del Campo stated, "I got two loans from Province Bank."[175] This farmer accessed credit by combining bank loans with "family savings."[176]

Key to biodynamic agroecological farm Tambo Holístico's success was the capital provided by the Tambo Holístico Foundation. It offered the farm access to what was once the estate of a wealthy late-nineteenth century politician and today is home to 200 Jersey cows and Waldorf educational activities. A key piece of capital was its milking and dairy processing facilities. This was infrastructure that would otherwise be far too expensive for small-sale dairy farmers to have on their own, so here a cooperative structure was important. That initial land investment was critical for Tambo Holístico in getting started, but today "Investments in capital are what we are really lacking, we have to do all sorts of games to see if we can get credit, subsidies, etc."[177] They have tried getting loans from three branches of the state (Ministerio de la Producción, Agroindustria, and Banco Nación), but no money had come through. Rather than going through the state or market to access startup capital, the cooperative relied on their social ties with the values driven Tambo Holístico Foundation offering rent that "is not paid at market value, because that would not be possible,"[178] especially because "the area is very close to Buenos Aires, the historic farmhouse is very beautiful, it's worth a fortune."[179] This is how

[174] "con los invernáculos, hemos ido creciendo permanentemente en eso. Sí, la verdad que, un poco, a veces, con ayuda de los bancos, y si no con ingresos que provienen de nuestro negocio, estamos reinvirtiendo." (Capital Orgánica)

[175] "saqué dos préstamos a Banco Provincia." (Queso del Campo)

[176] "un ahorro familiar." (Queso del Campo)

[177] "Inversiones en capital es lo que nos hace mucha falta, tenemos que hacer todo tipo de jugadas para ver si lo podemos conseguir créditos y subsidios, etc." (Tambo Holístico)

[178] "no se paga a un valor de mercado, porque no sería posible," (Tambo Holístico)

[179] "la zona está muy cerca de Buenos Aires, el casco histórico es muy lindo, vale una fortuna." (Tambo Holístico)

Tambo Holístico obtained cash flow early on; "the first sales were done in the Christian community, the second round was in the Waldorf school, which is very linked to this whole scene."[180] Only later did they have the volume to expand to more traditional markets, especially urban natural food stores in wealthy neighborhoods. It was social ties to communities with shared values that facilitated access to the startup capital for what has become one of the most established alternative dairies in Argentina.

Unionized agroecological farmers mostly grew vegetables, heavily relying on polytunnels to do so. Thanks to their economic position, they had minimal or no access to credit to build or repair them. That put them in a vulnerable position "when there is a storm here, or a strong wind, and the majority work in greenhouses, then everything is destroyed."[181] Boxed out of market access to loans for infrastructure, unionized agroecological farmers relied on their social ties with each other to build and repair each other's infrastructure.

Solidarity agroecological farmers organized their own systems for accessing microcredit loans. On the one hand, microcredit can be seen as a market-embedded approach to making social change. The way Quinta Solidaridad organized microcredit loans, however, was socially embedded in the values of the projects they promoted, but also in the process of collaborating with other organizations that had similar objectives. Funded by a 2006 national law providing microcredit to "the popular and solidarity economy,"[182] (Ministerio de Desarrollo Social 2020), a Quinta Solidaridad organizer recalled, "[Quinta Solidaridad] was one of the organizations that

[180] "las primeras ventas se hicieron en la comunidad cristiana, el segundo paso fue la escuela Waldorf, está como muy vinculada a toda esta movida." (Tambo Holístico)

[181] "cuando hay un temporal aquí, por ahí viene un viento, y la mayoría trabaja con invernáculos, entonces destruye todo." (UTT)

[182] "la economía popular y solidaria," (Quinta Solidaridad)

participated in what was the Buenos Aires Province consortium."[183] The goal was "to build networks, this thing from the logic of the social, the other, of solidarity. We are in a microcredit network with other organizations and we, well, we think, we plan how to work with microcredit, what things to support…70, 80% of the capital that we receive we put to family agriculture, with the characteristics of the organization being worked with."[184] With a group of other solidarity agroecological farmers, Sofía received one of these microcredit loans and recalled, "All of the materials arrived and we made it clear, that everyone comes on Thursdays to see, what did you do? Why did you do it? What couldn't you do? Why couldn't you do it? Do you need a hand? Let's go, and we'll give you a hand, and that's how three, three projects we proposed and three were finished."[185] Quinta Solidaridad, on an organizational level, and Sofía, on an individual level, extended the reach of these state-sponsored microcredit loans by working collaboratively with others, effectively socially embedding the market mechanism of microcredit to build farm infrastructure.

Sofía and other solidarity agroecological farmers also received economic support to build infrastructure from the Kirchner administrations. Marcos recalled, "16,000 pesos per farm, which gets you half of a greenhouse. There are people that were in love with that, me not so much…I

[183] "[Quinta Solidaridad] fue una de las organizaciones que participó dentro de lo que fue el consorcio en Provincia de Buenos Aires." (Quinta Solidaridad)

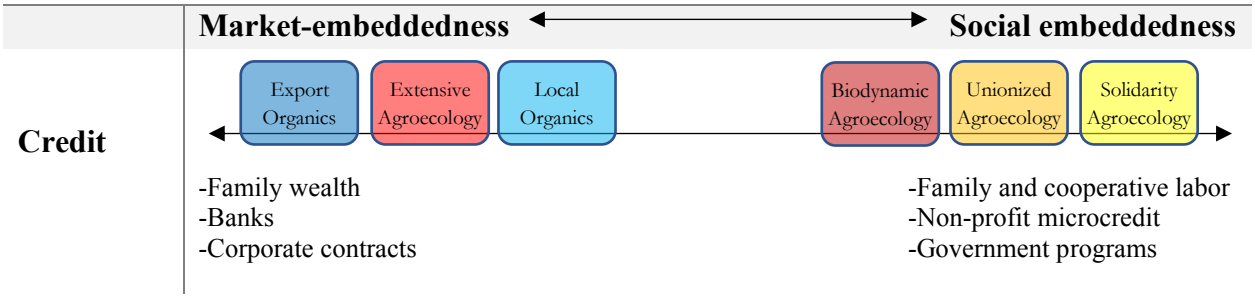
[184] "construir redes, esta cosa de la lógica de lo social, del otro, de lo solidario. Estamos dentro de una red de microcréditos con otras organizaciones y nosotros, bueno, pensamos, proyectamos, digamos, cómo trabajar lo de microcréditos, qué cosas fortalecer…70, 80% del capital que recibimos y lo destinamos a la agricultura familiar, con la característica de la organización con lo que está trabajando." (Quinta Solidaridad)

[185] "Llegaban todos los materiales y nosotros nos poníamos firmes, que vengan todos los jueves, a ver, ¿qué hiciste?, ¿por qué lo hiciste?, no lo pudiste hacer, ¿por qué no lo pudiste hacer?, ¿necesitas una mano?, vamos, y te damos una mano, y así tres, tres proyectos presentamos y los tres salieron." (Sofía)

think that them giving me something is saying 'vote for me.'"[186] When I asked if similar support continued under the neoliberal Macri administration, he responded, "No, for now no because there is not even a technician, there's nothing."[187] State support for key resources like infrastructure was important for solidarity economy farmers who did not have the means to access credit for infrastructure through market mechanisms. State support sometimes came and went with the political tides, and at other times – as with the microcredit program channeled through Quinta Solidaridad – endured through political changes, reaching farmers through organizations they had longstanding social ties to.

Figure 14 summarizes alternative farmers' market to socially embedded approaches to accessing credit.

Figure 14: How alternative farmers accessed credit



Organic and extensive agroecological farmers were the most likely to come from economic positions to access credit through banks or from social positions to access it through family wealth. In contrast, unionized and solidarity agroecological farmers relied on family and

[186] "16.000 pesos por quinta, alcanzaba para medio invernáculo. Digo, hay gente que quedó enamorada con eso, yo no…Creo que me den algo es como diciendo 'votáme.'" (Marcos)

[187] "No, por ahora no porque no hay ni un técnico, no hay nada." (Marcos)

cooperative labor, non-profit microcredit, and state programs to build infrastructure. Organic farmers from less economically privileged positions sometimes accessed credit through corporate contracts, which prioritized market-embedded interests. Biodynamic farmers bridged these extremes in credit access, relying on their social ties with wealthy people in their social circles.

Knowledge

The president of MAPO remarked on the importance of knowledge access to alternative agriculture:

> The Green Revolution made it so if you want this plateau to grow soy it will grow it, and I ask you, agricultural engineer and tell you, 'how do I grow it?' So you tell me, and I have already stopped thinking, I don't think anymore, I say, ah, three little things. I add three inputs, and there I'm lost, transformed into a robot. Today there are many producers that don't know how to produce. You notice it more than anywhere when transitioning from conventional to organic, they'll call you and begin to ask basic things about not knowing how to navigate things, or rather, they had a solution for everything with agrochemicals, fertilizer, and seeds, whereas now you have to learn the process. And it is a training.[188]

Industrial agriculture revolved around a top-down system of knowledge transfer where farmers relied on industry consultants (who often had their own market-embedded interests). While the MAPO president paid little credence to the ample knowledge that does indeed go into conventional production, he was right to point out that using ecologically embedded practices are

[188] "la revolución verde hizo que si querés que esta mesa crezca soja va a crecer y yo te pregunto a vos, ingeniero agrónomo y te digo ¿cómo hago para que crezca? Entonces vos me decís y yo ya dejé de pensar, yo ya no pienso más, yo digo, ah, tres cositas. Le pongo tres, entonces ahí se pierde, transformarse en un autómata. Hoy hay mucho productor que no sabe producir. Sobre todo te das cuenta cuando pasa de convencional a orgánico, te llama y te empieza a preguntar cosas básicas de no saber cómo manejar, o sea, lo tenía todo solucionado con el agroquímico, el fertilizante y las semillas, o sea, acá tenés que aprender el proceso. Y es un aprendizaje." (MAPO)

especially knowledge intensive. Yet even within alternative agriculture, knowledge transfer systems varied from top-down and market-embedded to horizontal and socially embedded.

While biodynamic agroecology existed in the middle of the market to socially embedded continuums for access to the other key resources, it was perhaps the most top-down when it came to knowledge transfer. How to do biodynamic agriculture was strongly defined by the teachings of Rudolf Steiner. While Steiner had long since passed away, his combined agricultural/spiritual philosophy was passed down in a regimented way through the biodynamic calendar. The calendar dictated practices down to what types of crops can be planted when, and given that there was one biodynamic calendar for all of Argentina – which is highly ecologically diverse – this was not an ecologically embedded approach. While many biodynamic farmers did not follow the regimen exactly, Steiner's teachings were the standard against which biodynamic farmers were compared to by many in the community. This top-down approach to knowledge transfer met the market through the biodynamic certification system, which not only demanded organic certification as a precondition, but additional practices like "preparations made from herbs, mineral substances and animal manures" developed by Steiner (Demeter Association 2017). Growers came from all over Argentina to take courses in biodynamics at Tambo Holístico; "Here we do courses in biodynamics…the other day we did a weeklong course where there were 20 people from all of Argentina, from Misiones, Mendoza, Salta, the south."[189] Although in practice few biodynamic farmers in Argentina were certified (which was expensive and mainly for export), and most did not follow every biodynamic practice, biodynamic knowledge was defined from above and codified in the certification system and calendar, which biodynamic farmers

[189] "Acá se hacen cursos de biodinámica…el otro día se hizo un curso de una semana en el cual había 20 personas de toda la Argentina, desde Misiones, Mendoza, Salta, el sur." (Tambo Holístico)

largely accepted as the ideal knowledge system that they were working toward realizing in practice.

Export organic farmers often leveraged knowledge in agribusiness they gained from universities – either directly or through a consultant – about how to effectively participate in capitalist export markets. For example, Conservas Orgánicas began when a honey producer applied agribusiness and market knowledge to weather a honey market challenge:

> A honey crisis came to Argentina because they had found some residues of antibiotics in the honey in Germany, and so they closed exports and the price of honey tumbled…I had also done a postgraduate degree in marketing and one in agribusiness and they always spoke about differentiation and added value. Well, in that moment of crisis I had some 10 thousand kilos of honey and it wasn't worth anything and, well, I said, I always have liked to cook. So I'm going to cook something with honey and I invented some products with honey. That was more or less in 2004. And from there I created what today is my brand, [Conservas Orgánicas].[190]

The compatibility of the export organic supply chain with existing agribusiness relations meant that organic farmers could readily apply knowledge from established top-down systems like in universities. The decision makers on organic farms mostly came from socioeconomic positions where they could access those resources, and used them to design their farms and supply chains.

Cereales Orgánicos' vertically integrated strategy leveraged the knowledge they had gained through the market to externalize the costs and risks associated with accessing the two most significant key resources, land and labor. In contrast to Cereales Orgánicos' broader grain business, where they could aggregate from existing organic producers, Matías got into the

---

[190] "vino una crisis en la miel argentina, porque habían encontrado unos residuos de antibióticos en la miel en Alemania, y cerraron las exportaciones, y el precio de la miel se derrumbó…yo había hecho también un posgrado de marketing y un posgrado en agro-negocios y siempre hablaban de diferenciación y valor agregado. Bueno, yo tenía en ese momento como unos 10 mil kilos de miel que no valían nada y, bueno, y dije, a mí me gustó siempre cocinar. Dije, voy a cocinar algo con la miel y inventé unos productos con miel. Eso fue más o menos en el 2004. Y ahí creé lo que es mi marca hoy, que es [Conservas Orgánicas]." (Conservas Orgánicas)

organic rice production because there were no organic rice producers in Argentina when he saw a growing market for it: "we stayed in rice because we were right in a moment of crisis. There was a lack of organic rice in California, and so we began to grow."[191] Matías then "went to look for producers, to teach them, convene them, and buy all of their product,"[192] bringing knowledge about organic production to conventional rice growers. Matías also leveraged his credit to guarantee them a market for the rice, even through the organic transition period when growers had to pay the higher costs of organic production but could not yet earn higher returns by selling the product as organic.

While export organic supply chains aligned with conventional agribusiness market knowledge, knowledge about organic production remained drastically underrepresented in institutions like the public universities and extension system. Campo Orgánico's producer, for instance, wished there was more research like this: "people researching non-chemical products to fumigate and combat diseases, vegetable-based products that work to combat diseases, and here in Rosario there are people researching that."[193] In other words, this producer wanted to see conventional knowledge development and transfer systems take on more work related to organics, in this case in research about input substitution (chapter three).

But organic farmers' knowledge access was not all top-down. Rather, they also engaged in horizontal, farmer-to-farmer meetings on topics like inputs and marketing, sometimes led by the state through INTA. Campo Orgánico's producer continued,

---

[191] "nos quedamos en el arroz porque justo fue un momento de crisis. Falta de arroz orgánico en California, y nosotros empezamos a crecer." (Cereales Orgánicos)

[192] "ir a buscar los productores, enseñarles, convocarlos y comprarles toda la mercadería," (Cereales Orgánicos)

[193] "gente investigando productos que no son químicos para fumigar y combatir malezas, son productos de origen vegetal que sirven para combatir malezas, que acá en Rosario hay una gente haciendo investigación en eso." (Campo Orgánico)

> We all share seeds and we share our individual problems to come up with solutions for them. We meet monthly on a farm and normally the owner of the farm presents what they have and tells us about their things and problems and the group advises on a solution for their problems. We also have meetings in INTA or in different places where we can talk about things of interest to us…and then it's also rather commercial, some of us talk about who we are doing commercially, who we are selling corn or soy or sunflower to and how the prices are. Because there is not a general market for this, we are left to do it ourselves because we are making some money and we are exporting moderately what we have, but many producers have to go out to find and see who to sell to.[194]

Organic farmers utilized a mix of top-down, market-embedded practices and horizontal, socially embedded practices to access knowledge specific to their production system and supply chain. Extensive agroecological farmers had a similar mix, with many following the influential teachings of Eduardo Cerdá, who gave numerous public lectures and also helped organize farmer-to-farmer gatherings about extensive agroecology.

At the heart of unionized farmers' transition to agroecology was a system of horizontal knowledge transfer based on trust, rather than a top-down system based on credentials. For conventional UTT farmers, "there was a distrust that if you don't use chemicals, you can't produce. The producers already had it so stuck in their head that if you go to them with a different idea about production they did not believe it."[195] In contrast to organic producers who

---

[194] "Todos compartimos semillas y compartimos nuestros problemas individuales y las soluciones. Nos reunimos mensualmente en un campo y normalmente el dueño del campo presenta lo que tiene y cuenta sus cosas y cuenta sus problemas y el grupo le aconseja y le dice que es lo que el grupo cree que es la solución para sus problemas. Después también hacemos reuniones en el INTA o en distintos lugares donde pueda haber algo de interés para nosotros…y después también bastante comercial, nos comunicamos unos con otros a ver cómo venimos comercialmente, con quién estamos vendiendo el maíz o la soja o el girasol y cómo estamos con los precios. Ya que no hay un mercado generalizado de esto, hay que salir nosotros porque estamos con una plata y estamos exportando medianamente lo tenemos, pero muchos productores tienen que salir a buscar a ver a quién venderle." (Campo Orgánico)

[195] "estaba la desconfianza de que si no es con químico, no se puede producir. Ya lo tienen tan metido en la cabeza los productores, que vos les vas con una propuesta diferente de producción y no se la creían." (UTT)

typically hired an agricultural engineer to advise on transitioning to adhere to the organic standards, "There are no engineers that come here from the other side. Still no, it's only been between producers."[196] Key to the UTT's system of knowledge transfer was having agroecology teachers who were farmers themselves, which increased trust that the transition from conventional to agroecological production – which could be risky – could actually work;

> The reality is that if a person with a degree comes and tells you, ok, check out this thing that will work for you, it drives you crazy. In other words, the producer goes crazy saying, no, I already tried this, and it didn't work for me. In contrast, to put it differently, from one producer to another saying this thing works like so, and on top of that you have an agroecological farm and you say to me, this is going to work. And he sees that it works.[197]

Through farmer-led courses in agroecology, the UTT fostered the growth of social ties for transferring knowledge, which relied on trusting the instructors because they came from a similar agricultural and social position as the farmers themselves.

Solidarity agroecological farmers had a similar orientation to knowledge access as unionized agroecological farmers, but were perhaps more socially embedded in existing and broader agroecological knowledge networks, such as MAELA (Movimiento Agroecológico Latinoamericano y del Caribe – Agroecology Movement of Latin America and the Caribbean). A telling example of solidarity agroecological farmers' building knowledge together through local social ties is through their seed saving practices. Seeds are distinct from other farm inputs in how they hold the knowledge of generations of farmers who have developed varieties by purposefully

---

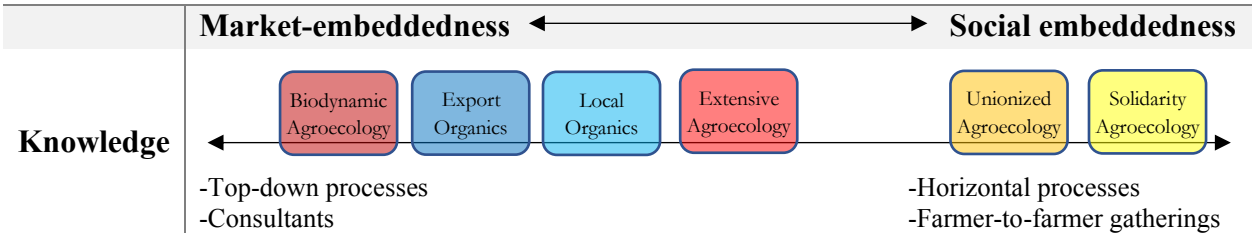
[196] "No hay ninguno que sea ingeniero o que venga acá de otro lado. Hasta ahora, no, solo fue entre productores." (UTT)

[197] "Es la realidad, que una persona que tiene un título viene y te dice, bueno, fijate esto que te va a funcionar y te volvés loco. O sea, el productor se vuelve loco diciendo, no, lo apliqué esto, pero no me funciona. En cambio, o sea, de un productor a otro productor diciéndole esto funciona así, encima vos tenés en tu quinta de producción agroecológica y le decís, esto va a funcionar. Y él ve que sí funciona." (UTT)

selecting seeds. Sofía explained, "We try to do native and local seeds, going with the seeds that our ancestors planted."[198] To maintain the knowledge of her ancestors that is embodied in her seeds, Sofía participates in a local solidarity agroecology seed bank; "we get the best seed, we dry it…and then we clean it and bring it to [the seed bank]. [The seed bank] tests if they are fertile, and if so, saves them, and from that we give to the people who cannot buy seeds…there are not so many varieties but there is always something."[199] This method was effective but underfunded; solidarity agroecological farmers lamented when the Macri administration evaporated support for state-sponsored seed initiatives like Prohuerta and the Feria de las Semillas. Trust-based social ties were critical for literally keeping ancestral knowledge alive during a time when the food economy – and then the state – did not support saving seeds.

Figure 15 summarizes alternative farmers' market to socially embedded approaches to accessing knowledge.

Figure 15: How alternative farmers accessed knowledge



[198] "Tratamos de hacer semillas nativas y criollas, manejarnos con las semillas que sembraban los abuelos" (Sofía)

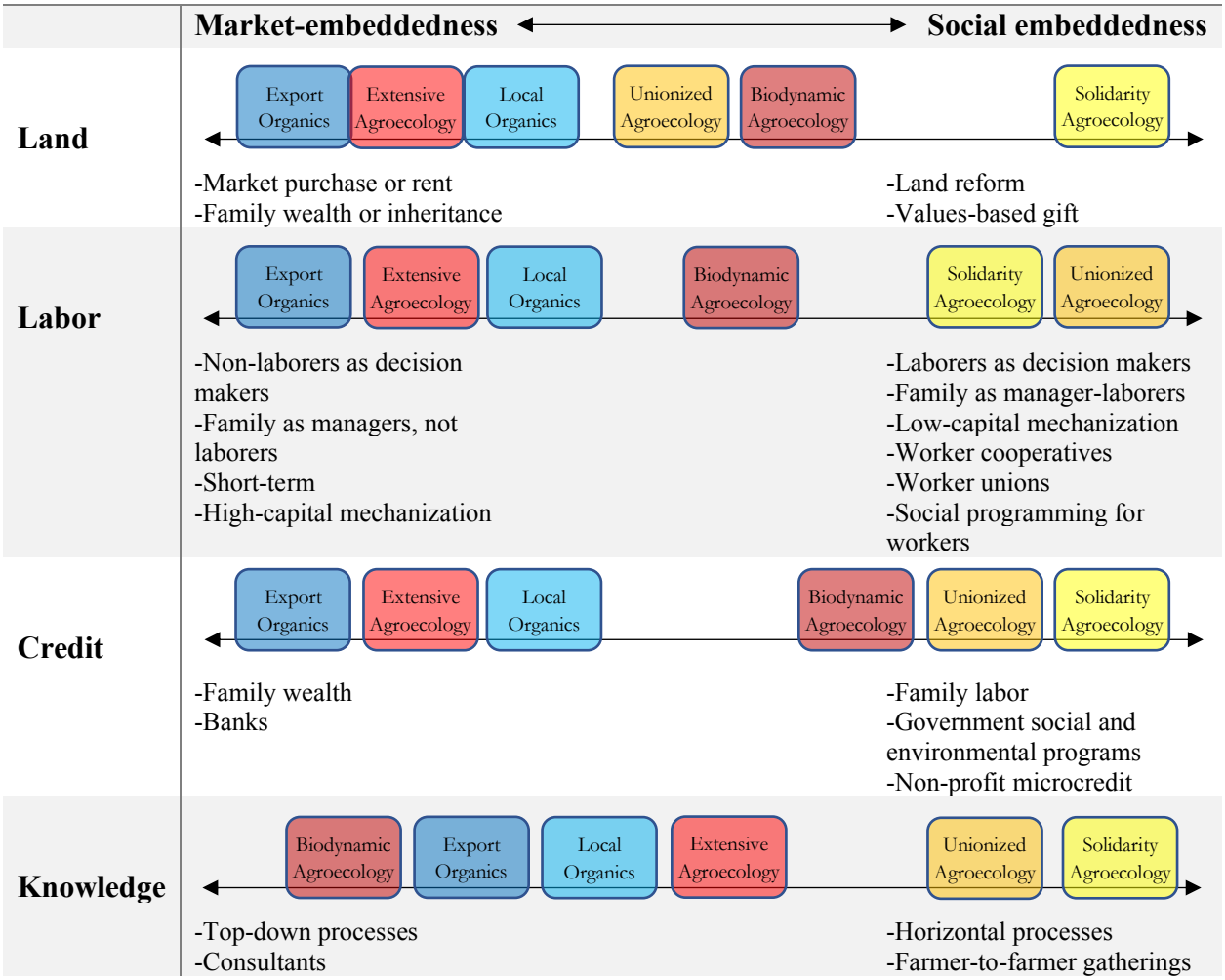
[199] "nosotros juntamos la mejor semilla, la secamos...y después la limpiamos y la llevamos a [Quinta Solidaridad]. [Quinta Solidaridad] prueba si son fértil, entonces bueno, se bien y se guarda, y de eso se le va dando a la gente que no puede comprar…no tantas variedades pero siempre hay algo" (Sofía)

Biodynamic agroecology's approach to accessing knowledge was the most top-down. Organic, biodynamic, and extensive agroecological farms often relied on consultants or prior knowledge accessed through conventional means like universities. Solidarity agroecological farmers also benefited from the nascent and growing university agroecology programs. Solidarity and unionized agroecological farmers relied most heavily on horizontal knowledge access systems, but farmer-to-farmer learning was important to, and practiced by, all subgroups. The success of knowledge transfer systems relied on trust – which often came more quickly when learning from people of similar social positions – especially for those who accessed knowledge through more socially embedded strategies.

DISCUSSION: FROM MARKETS TO SOCIAL MYCORRHIZA

For alternative farms to enact any of the alternative food movement's social (chapter two) or environmental (chapter three) goals, farms must be economically viable. Viability hinges on access to the fictitious commodities of land, labor, credit, and knowledge. As Figure 16 summarizes, farmers' strategies for accessing these key resources varied along continuums from market to socially embedded.

Figure 16: How alternative farmers accessed land, labor, credit, and knowledge



Farmers who came from the most economically and socially privileged backgrounds (organics and extensive agroecology) had the means to access key resources through market-based strategies. These were also the farmers who were the least likely to prioritize social concerns like equitable labor and food security (chapter two) and who had the narrowest set of environmental priorities (chapter three). Farmers (especially biodynamic) existed between the market and social embeddedness ends of these continuums. The most socially and economically marginalized

farmers (solidarity and unionized agroecological) were structurally disadvantaged in accessing key resources through market-based strategies, and instead relied on socially embedded strategies to do so.

Social mycorrhiza

Whereas it is relatively clear how market infrastructure functions as a conduit for accessing key resources, the most significant finding of this chapter is about how the social relational infrastructure that certain agroecological farmers rely on works to enable access to key resources for farm viability. Here, I offer a concept I call "social mycorrhiza"[200] to describe how these farmers used social networks to access key resources and the conditions under which these socially embedded strategies were able to maintain movement values amid economic pressures. Social mycorrhiza draws attention to the web of social action that exists beyond social movement organizations. It also highlights the roles of identity, power, and history in how farmers access resources through beyond-market strategies.

Social mycorrhiza is a metaphor for how actors who embody a mix of market-based interests and movement-based values use social networks to access resources. In this context, it describes how agroecology's social relational infrastructure works to enable farmers to access key resources when social inequality keeps them from accessing them on the market. Here, I first explain the concept of (ecological) mycorrhiza because it offers a visual aid for understanding

[200] Similarly, the Vermont Healthy Soils Coalition uses the term "social mycelium" to describe social ties in their network (Vermont Healthy Soils Coalition 2020). Ecologically speaking, "mycelium" refers to a collection of hyphae, described below. In contrast to this use of social mycelium, I use social mycorrhiza to describe a more specific type of social relationship that involves resource flows between at least two entities. Whereas "mycelium" refers to the part of a fungus that delivers resources, "mycorrhiza" refers to the relationship between fungi and plants where they mutualistically exchange resources between each other under certain conditions, also described below.

social mycorrhiza. Second, I describe how I adapt the term mycorrhiza to make it applicable to social relations. Third, I explain how social mycorrhiza exists on a continuum from mutualistic to parasitic, useful for revealing the trajectories of social movements like alternative agriculture movements that involve enacting values and exchanging money at the same time. Finally, I briefly discuss how social mycorrhiza contributes to social movement, economic development, and systems science literatures.

"Myco" refers to the world of fungi. "Rhizo" refers to the world of plant roots. The relationship between fungi and plants is called "mycorrhiza." Mycorrhiza may be parasitic or mutualistic. Cutting edge soil scientists have discovered that fostering the growth of mutualistic mycorrhiza is key for addressing some of the biggest ecological problem of our era: the climate crisis, biodiversity loss, and toxic exposures (the subjects of chapter three). We can briefly explain how by visualizing how fungi are the conduits for exchanging key ecological resources between soil and plants.

Fungi send long threads called hyphae underground to gather resources from the soil. Certain fungi attach those hyphae to plant roots to trade those resources for carbon that the plant harnessed from the atmosphere through photosynthesis. The hyphae of one group of fungi – arbuscular mycorrhizal fungi (AMF) – can have these mutualistic relationships with 80% of the earth's plant species and most of its food crops (Pepe, Giovannetti, and Sbrana 2018: 1). Astonishingly, AMF hyphae can aid in food production by multiplying up to 40 times the nutrient absorbing surface area of a plant's roots (Pepe, Giovannetti, and Sbrana 2018: 1). AMF help with climate mitigation primarily by taking the carbon that the plant sucked out of the atmosphere and sequestering it into the soil in the form of SOM (soil organic matter) (Sosa-Hernández et al. 2019). There is more carbon in SOM than in the atmosphere and in all of the

world's vegetation combined, making growing SOM a critical strategy for sequestering atmospheric carbon (Ontl and Schulte 2012). Importantly, 50-90% of SOM is produced through the life cycle of fungi, revealing how growing mutualistic mycorrhizal relationships is central to climate mitigation (Liang et al. 2019). Increasing SOM also helps climate adaptation because it acts like a sponge for water retention in droughts and for slowing runoff during floods (Kremen and Miles 2012). Increasing mutualistic mycorrhiza also has other socioecological benefits such as protecting plants from pathogens (reducing the impetus for using certain harmful agrochemicals) and breaking down toxic pesticides left in the soil by industrial agriculture, a form of bioremediation (Odukkathil and Vasudevan 2013).

Both industrial and certified organic farmers are increasingly seeing the value of ecological mycorrhiza and are experimenting with low- or no-till practices, because tilling the soil destroys delicate hyphal networks (Kabir 2005). However, an agroecological approach to fostering the growth of mycorrhiza is distinct from that of both industrial and certified organic agriculture. Industrial agriculture's motto can be summed up as "feed the plants, not the soil," and the certified organic motto as "feed the soil, not the plants" (DeVore 2016). Understanding the role of mycorrhiza in soil ecology points to a different agricultural approach. Drawing on agroecology's priority of fostering "living soil" (Shiva 2016), I see the agroecological approach not as feeding the soil or feeding the plants, but as feeding the *living relationships* between the soil and the plants.

Taking ecological mycorrhiza as a metaphor for the human realm, social mycorrhiza describes the social networks that many agroecological farmers rely on to access key resources. Whereas "social networks" is a broader term that includes all of the people that farmers have any sort of relationship with, social mycorrhiza describes a more specific relationship where people

are exchanging material or ideal resources. Imagine social hyphae connecting an agroecological farmer to all the other nodes in their social network. Farmers do not establish these social ties for the explicit or sole purpose of exchanging resources – as would be the case for market-based exchange – but they are rather a result of relationships forged through shared values, experiences, or identities. While they may have been established for other reasons, these social ties may then become the conduit for a farmer to access resources. As we have seen in this chapter, solidarity and unionized agroecological farmers relied on long-standing social ties for accessing small plots of land, cooperative labor for marketing and building infrastructure to make the land economically viable, and to learn from each other. Biodynamic agroecological farmers also relied on social mycorrhiza to access land, labor, and credit, but did so in social circles that were almost completely distinct from (and far wealthier than) unionized and solidarity agroecological farmers.

But strong social ties did not necessarily facilitate resource access, and accessing resources through social ties sometimes destroyed those ties. To account for this, like ecological mycorrhiza, social mycorrhiza may be parasitic, mutualistic, or a mix of both. To define parasitic and mutualistic social mycorrhiza, I draw from Bell's (1998) understanding of the relationship between interests, sentiments, and collective action. All farmers embodied a mix of market-based interests and social values-based sentiments, as did the social mycorrhizal relationships between them.

Mutualistic social mycorrhiza means that resources flow through social relationships in a way that accounts for all parties' interests and sentiments (or values). As Bell (1998) argues, sustained collective action – in this case accessing key resources for farm viability – is most likely when actors feel like those on the other end of the social hyphae are acting in accordance

to both their interests and sentiments. Because that is usually not possible in any one given moment, actors must trust that the other will act according to both their interests and sentiments in the future. We can discern the degree of social mycorrhiza's mutualism by the level of trust maintained between actors, over time. For example, one solidarity agroecological farmer I spoke with helped found an agroecological market through mutualistic social mycorrhiza, evidenced by socially embedded strategies such as farmer-led, horizontal decision making and mechanisms to support farmers' economic viability while delivering on their shared social values of delivering agroecological food as affordably as possible. Over time, however, this mix of interests and sentiments fell out of balance.

Parasitic social mycorrhiza means that resources flow through social relationships in a way where interests and sentiments fall out of balance, to the detriment of the other. Self-interest prevailing to the detriment of shared values is common when resources are exchanged in purely capitalist market relationships. This is similar to the type of extractive relationship that has long characterized peasant relationships with capitalist elites. Wolf (1966: 47) summed up this relationship:

> [T]here is a shift of attitudes when the peasant confronts the person who has a lien on his surplus of rent or on his surplus of profit…Not only do these people represent an actual or potential threat to him in his endeavor to balance the various funds that make his existence possible, but they are also connected to him by ties which are based on a single economic or social interest, usually motivated by the wish for gain. Economic interests are directly opposed, and are not counter-balanced by more personal involvements. Thus, social distance is reinforced by an absence of shared experience.

A parasitic relationship like this can also occur when values or "personal involvements" do not account for the actor's economic necessities. Sentiments prevailing to the detriment of individuals' economic sustainability is common when resources are exchanged in non-profit

models. In both scenarios, trust deteriorates. In the same solidarity agroecological market mentioned above, a handful of actors slowly consolidated power over the decision-making process, eventually turning it into a top-down organization that prioritized their own economic interests over the interests and sentiments of the participating farmers.

This distinction between mutualistic and parasitic social mycorrhiza offers a lens for discerning when entities with simultaneous business interests and movement values – like this solidarity economy market – are likely to be able to sustain the enactment of their values and when they are prone to collapse or cooptation. In this example, the organizers maintained solidarity economy discourses in their advertising – useful for attracting values-driven customers – but eventually stopped living up to those values in the economic and decision making structures of the market itself. In doing so, trust declined over time and the mutualistic social mycorrhiza that built the market turned parasitic, effectively coopting this node of the solidarity economy movement. In contrast, mutualistic social mycorrhiza would look more like what Wolf (1966: 81) calls a "manystranded peasant coalition," which "is built up through the interweaving of many ties, all of which imply one another: Economic exchanges imply kinship or friendship or neighborliness; relations of kinship, friendship, or neighborliness imply the existence of social sanctions to govern them; social sanctions imply the existence of symbols which reinforce and represent the other relations. The various relations support one another." So, instead of taking a self-described moral or solidarity economy like this agroecological market at face value, we can instead seek evidence of mutualistic and parasitic social mycorrhiza that extend through it, over time.

Social mycorrhiza is useful for studying social movements that are comprised of social action that takes place largely outside of social movement organizations. Studies about the social

movement aspect of agroecology tend to focus on a SMO (e.g. Desmarais 2007; Wolford 2010). While that approach is fundamental, it is also important to study the dispersed networks of social movement actors like agroecological farmers, who enact movement goals but who do not necessarily engage with SMOs. From a social mycorrhiza perspective, a SMO is like a fungus' fruiting body – the mushroom – which is the most visible part of the organism but is only a small part of the entire fungus. The mushroom is the fungus' reproductive organ. Like mushrooms, SMOs are important for cross-fertilization and for the continued survival of everyone its social mycorrhiza touches. Also like mushrooms, SMOs often appear in response to a threatening change in the environment, in an effort to reproduce before the threat consumes the whole. But mushrooms are only the tip of the fungal iceberg. Social mycorrhiza may extend through SMOs (as with the examples from the solidarity agroecology organization Quinta Solidaridad), and the state (such as when INTA promoted farmer-to-farmer programming), but it extends far beyond formal organizations. In contrast to a SMO approach, social mycorrhiza draws attention to the daily experiences and often-underground social ties and resource flows of farmers, who may be part of a broader agroecological or organic social movement but who may not be active in a social movement organization.

Social mycorrhiza also contributes to economic development and systems science literatures – which are often the home to the study of resource flows – by bringing attention to the roles of identity-based oppression and resistance in resource flows. As the food justice literature demonstrates and this study replicates, identity-based oppression often marks the fault lines between groups that advocate for food systems to prioritize particular economic, environmental, or social priorities (e.g. Leslie & White 2018; Williams and Holt-Giménez 2017). In the terms of social mycorrhiza, structural and interpersonal identity-based oppression breeds

distrust that feeds parasitic social mycorrhiza in food systems. At the same time, shared identity-based experiences can be the source of trust that facilitates resource flows in cases of mutualistic social mycorrhiza. Or, in Wolf's (1966: 81) language, shared identity-based experiences can be the root of "horizontal peasant coalitions," which consist of "persons with the same life chances, occupying the same positions in the social order," or the source of symbols that reinforce social relations in manystranded coalitions. Because history matters for building trust, especially as related to identity-based oppression and resistance, social mycorrhiza highlights the roles of identity and continued historical power relations in how resources flow through social ties.

CONCLUSION

After asking unionized agroecological farmer Paula what agroecology meant to her in her own words, she described how while UTT farmers are initially attracted to agroecology for the lower costs associated with reducing agrochemical inputs, it quickly becomes apparent that agroecology is more about social relations:

> It's like saying, that it lowers your costs of production, yes, but then you start noticing that yes, it lowers costs, but your personal life changes a ton, because before there had not been a social relationship at all. For you, the truck would come, you would put your vegetables in and, bye, you wouldn't have more of a relationship than that, and maybe you know that the agrochemicals that they sell you are venomous, nothing more…We went to workshops, we got to know other people, maybe your neighbor who you never had a word with was at your side and, beginning to produce without chemicals brings that, a lot of relationships to you. It changes your lifestyle, your mode of consumption, or rather, your way of life changes a ton. I don't know if there is a word to explain it.[201]

[201] "Es como decir, que te bajan los costos de producción, sí, pero después te vas dando cuenta de que sí, bajan los costos, pero tu vida personal cambia un montón, porque ahí no había relación social en nada. Vos, venía en camionero, ponías tu verdura y, chau, no tenías más relación que esa, y capaz conocés al de la agroquímica que te vende los venenos, nada más…Fuimos a los talleres, conocimos a otras personas, capaz al vecino que tenemos al

The phrase I use to explain it is social mycorrhiza. Conventional UTT farmers had preexisting social networks with weak social ties to people they were engaged with through market exchange for things like selling vegetables and buying inputs. The process of transitioning to agroecology birthed stronger social ties and facilitated flows of resources like knowledge.

Social mycorrhiza describes the social relational infrastructure of agroecological economies. While agroecological farmers were more likely to rely on mutualistic social mycorrhiza and organic farmers more often used market-embedded approaches to access key resources, mutualistic social mycorrhiza is not exclusive to farmers who call themselves agroecological. Rather, part of the power of this framework is how it uses identifiable practices (like those on the market to socially embedded continuums) to describe the social relations of agricultural economic practices, rather than the discourses farmers use to describe themselves. Alternative agriculture descriptors like agroecology that do not have a certification system are prone to cooptation (Holt-Giménez and Altieri 2013) and descriptors like organics that rely on a minimum-standard based certification are prone to a market-embedded race to the bottom (chapter 3; Guthman 2014 [2004]). Other descriptors, like "family farming," are popular among politicians of all political persuasions but mean little or nothing in terms of agricultural practices (Leslie, Wypler, and Bell 2019). Some agroecological farmers – especially extensive agroecology – relied heavily on market-embedded practices while organic farmers exhibited mutualistic social mycorrhiza in areas like farmer-to-farmer learning. Social mycorrhiza offers a

lado nunca habíamos cruzado palabra y, empezar a producir sin químicos lleva a eso, a relacionarte un montón. Cambia tu estilo de vida, tu modo de consumo, o sea, el modo de vivir cambia un montón. No sé si hay una palabra para explicar." (UTT)

way to identify (and thus support) mutualistic agricultural economic practices that farmers from any agricultural paradigm might embrace.

Social mycorrhiza helps explain how economically and socially marginalized farmers manage to persist in an economy that is heavily stacked against them, touching on the longstanding "agrarian question" (McMichael 1997). However, when we consider that these same farmers were those who most utilized practices important for tackling agriculture's global social (chapter two) and environmental (chapter three) problems, "persisting" is not enough to fundamentally address these problems. Because markets systematically disadvantage farmers who do the most work toward these public goods, greater progress toward these goals demands leveraging the power of the state to restructure incentives in agricultural economies. States are not inherently for or against agroecological movement goals, but histories of parasitic social mycorrhiza (e.g. Leslie and White 2018) and mutualistic social mycorrhiza (e.g. Leslie 2017a) between the state and alternative farmers affect the future of trust-based social relational infrastructure. For states to multiply the social and environmental goods brought by agroecological practices, this research suggests that they must earn the trust of farmers who have long persisted in doing this work despite the state's neglect. States can do this in part by expanding equitable access to key resources for farm viability for farmers who implement practices that prioritize food sovereignty (chapter two), eliminating toxic exposures, increasing biodiversity, and growing soil organic matter for climate mitigation and adaptation (chapter three).

In conclusion, the social relational infrastructure of agroecological economies – what I have called social mycorrhiza – is how farmers persist in a capitalist economy that systematically disadvantages them in growing viable businesses that simultaneously deliver social and

environmental public goods. In this case, farmers who were the most socially privileged tended to have the narrowest social and environmental goals and relied most heavily on market mechanisms to access key resources for farm viability. In contrast, the most socially marginalized had the broadest movement goals, and most heavily relied on trust-based ties through dispersed social networks to access key resources. These relationships were often forged through shared experiences of social oppression and resistance, revealing how shared identity-based experiences can be the source of trust that facilitates resource flows in alternative agriculture economies. Yet for alternative agricultural systems to realize their potential in reversing the social and environmental harms of industrial agriculture, this research suggests that states must intervene in markets to facilitate equitable access to key resources and to reverse the incentives to perpetuate social and environmental harms. Doing so effectively will demand building and maintaining mutualistic social mycorrhiza between the state and the farmers who have long been implementing strategies to design businesses that deliver social and environmental – not just market – goods.

Chapter 5 – Conclusion: Agriculture's global Green New Deal

In 2020, Argentinian sociologist Maristella Svampa and environmental lawyer Enrique Viale published a call for Argentina's own Green New Deal, or Gran Pacto Ecosocial y Económico. They highlighted how industrial agricultural monocropping exacerbates the climate crisis, pandemics, and diseases. To rectify these and other harms of industrial agriculture, they called for a transition to agroecology;

> An eco-transition means boosting agroecology to transform Argentina's food and farming systems. Here, the creation and promotion of green belts for ecological farming in cities and towns is key to generating employment and guaranteeing healthy, safe, and affordable food. These initiatives would also promote food sovereignty, involving production and distribution systems aimed at developing local agroecological and markets for small-scale producers that focus on fostering a community culture and responsible consumption. A good start would be to make it compulsory for governments to buy food from these producers for schools, hospitals, and other public institutions. This would encourage the new farming system to take root in small and medium-size semi-rural cities, complemented by access to land, housing, good quality health services, and education (from kindergarten to university).

Svampa and Viale's vision of an agroecological transition highlights several themes that have also emerged in this dissertation: food supply chains' relationship between city and country (i.e. the metropolitan foodshed (chapter one), food sovereignty as agroecology's social vision of food security, rooted in community culture and responsibility (chapter two), toxin-free, biodiverse, and climate resilient agricultural ecosystems (chapter three), food systems' relationships with equitable access to land, labor, and knowledge (chapter four), and the role of the state in food system transitions (chapters two though five).

In Argentina, the U.S., and elsewhere, public debate about how to address the climate crisis and economic injustice are increasingly focusing on agriculture as a key area of intervention (Cummins 2020; Svampa and Viale 2020). The role of agriculture and food systems in a just climate transition is not a new topic for scholars in this area (e.g. Lengnick 2015), but it gained momentum in public discourse after U.S. Representative Alexandria Ocasio-Cortez and Senator Ed Markey introduced a resolution for a Green New Deal in 2019 (Patel and Goodman 2019). These proposals use various names for the types of agriculture effective for a Green New Deal. The U.S. resolution calls for:

> working collaboratively with farmers and ranchers in the United States to remove pollution and greenhouse gas emissions from the agricultural sector as much as is technologically feasible, including – (i) by supporting family farming; (ii) by investing in sustainable farming and land use practices that increase soil health; and (iii) by building a more sustainable food systems that ensures universal access to healthy food" (U.S. Congress. 2019: 8-9).

While this resolution was not intended to offer specifics, the use of politically malleable discourses like "family farming" is notable.

The European counterpart – the Green Deal's "Farm to Fork Strategy" – names both organics and agroecology in the types of agriculture it calls on to support: "These plans should lead to the use of sustainable practices, such as precision agriculture, organic farming, agro-ecology, agro-forestry and stricter animal welfare standards" (European Commission 2019: 12). As is common in discussions about alternative agriculture, the European text lists types of alternative agriculture as if their climate-related practices and impacts were equivalent, rather than distinguishing types of alternative agriculture. Doing so is critical because, as I showed in chapter three, many organic producers grow in monocultures rather than diversified production systems that grow soil organic matter critical for climate mitigation and adaptation (as promoted

by agroecology). And as Feldman et al. (2020: 2) point out, "The Intergovernmental Panel on Climate Change (IPCC) considers soil carbon sequestration the lowest cost sequestration option with costs ranging from $0 to $100 per ton. Changing the way we farm could, within 25 years, sequester 20 PgC (petagrams of carbon), more than 10 percent of anthropogenic emissions." To address climate change it is vital to be explicit about supporting farms that grow soil organic matter, rather than relying on flexible alternative agriculture discourses. And as I argued in chapter two, when scholars and practitioners use "agroecology" to describe agricultural practices, they must be explicit that their use of it includes the social value of food sovereignty if it is to guide building food supply chains to prioritize the distribution of wealth and decision-making power, rather than economic extraction and concentration.

The European call for a Green Deal makes an interesting note about how food supply chains should be governed: "By shifting the focus from compliance to performance, measures such as eco-schemes should reward farmers for improved environmental and climate performance, including managing and storing carbon in the soil, and improved nutrient management to improve water quality and reduce emissions" (European Commission 2019: 12). Compliance and performance metrics will be stronger when – in the language of chapter three's alterative agriculture house – when they are conceived of as both a floor of minimum standards ("compliance") and also a continually improvable roof ("performance"). Importantly, national and regional approaches to global Green New Deal governance must take precautions so that regulations do not enable actors to simply shift ecological and social harm to somewhere beyond its political borders.

This ethnography of alternative food supply chains in Argentina contributes to global calls for transforming agriculture as part of a Green New Deal. It does so by offering greater

clarity about (1) the differences between particular types of alternative food supply chains, (2) the social and environmental outcomes that they produce, (3) the political economic tendencies that affect their relative growth, and (4) the role of identity-based social forces in the development trajectories of alternative food systems. More specifically:

In chapter two – *"'Organic is capitalist and agroecology is socialist'*: Alternative farmers' approaches to food insecurity beyond dualisms" – I distinguished subgroups of alternative farmers that existed beyond the organics/agroecology dualism, and evaluated their food security-related social outcomes. I asked, what discernable subgroups of alternative farmers exist beyond the organics/agroecology dualism, based on their economic and social networks? For each subgroup, who holds the power to decide which alternative food supply chain the farm sells into? And what are the food security-related social outcomes associated with each alternative food supply chain? I ethnographically observed the points of sale for alternative food in Buenos Aires, Argentina, and traced that food back to the farms where it was grown. Tracing alternative farmers' economic and social networks revealed two subgroups of organics – export and local – and four subgroups of agroecology – extensive, biodynamic, solidarity, and unionized. While their food sometimes showed up at the same point of sale, there were clear disparities in each subgroup's typical level of social and economic privilege, which made for differences in the food supply chain they sold into, the crops they grew, and their access to state support. Export and local organic farmers rarely critiqued markets as a vehicle for achieving food security, instead focusing on consumer education and expanding the industry. In contrast, solidarity and unionized agroecological farmers most often believed that food security was not achievable through markets unless markets were governed by the principle of food sovereignty – the right of local people to democratically govern food supply chains. Biodynamic and extensive

agroecological farmers used a variety of approaches to food security. All subgroups embodied a mix of market interests and movement values, which I characterized using Hinrichs' (2000) continuum of market to social embeddedness. But when compared according to the way each defined and valued food security, the farmers who most prioritized equity were the ones with the least power to expand food supply chains that enact it. Chapter two revealed subgroups of alternative farmers stratified by race, class, and gender, which correlated both to the biophysical organization of the alternative agriculture landscape as well as the social organization of alternative food supply chains (especially their relationship to movement and state priorities). This chapter's research indicated that for alternative food chains to provide food security to the most vulnerable – including those who actually grow it – alternative food movements must address the social inequalities they (re)produce and support the specific alternative agriculture subgroups that prioritize food sovereignty.

In chapter three, – "The alternative agriculture house: Movement building for tackling toxicity, biodiversity loss, and the climate crisis" – I evaluated the six alternative agriculture subgroups' environmental outcomes. I asked, how do subgroups of Argentinian alternative farmers differ in their strategies for addressing these three core ecological challenges of alternative agriculture? How do they interpret each other's prioritization of these three environmental goals? In chapter two, I derived six subgroups of Argentinian alternative farmers and compared them as producers of the social outcome of food security on a continuum of market to social embeddedness (Hinrichs 2000). In chapter three, I compared the same subgroups as producers of the environmental outcomes of toxicity, biodiversity loss, and the climate crisis, using qualitatively observable indicators I derived for agricultural practices that vary on continuums from market to ecological embeddedness (Morris and Kirwan 2011). I found

that the most socially and economically powerful subgroups usually grew certified organics and employed market-embedded practices that mainly prioritized eliminating toxic exposures. In contrast, the most marginalized subgroups tended to grow agroecologically and used more ecologically embedded practices that work more toward biodiversity and the climate. Subgroups varied more on the three ecological continuums than their words about each other usually accounted for, but clear patterns persisted. I argued (1) identity-based social and economic inequalities within alternative agriculture mark the divisions between subgroups and limit their capacity to implement ecologically embedded practices, (2) certified organics' focus on toxicity dominates the environmental discourse on alternative agriculture, exacerbating internal divisions and stunting collective action on biodiversity and the climate, and (3) patterns in individual alternative farmers' focus on different environmental movement goals are structural to the political economy of alternative agriculture. I concluded by offering a framework – "the alternative agriculture house" – that explains how the political economy of alternative agriculture prioritizes certain ecological goals over others. The house illustrates the relationship between certified organics' minimum standard approach (the "floor") and agroecology's continual improvement approach (the "roof"). This relationship currently exacerbates alternative agriculture's race to the bottom and disproportionate progress toward individual health-related toxicity concerns over biodiversity loss, the climate crisis, and food insecurity. The model also illustrated the roles of social movements and the state in the alternative agriculture house, revealing leverage points for structural intervention.

In chapter four, – "From markets to social mycorrhiza: Alternative farm viability strategies" – I examined how the six subgroups accessed the key resources they needed to be economically viable farms that produce social (chapter two) and environmental outcomes

(chapter three). Key resources that farmers need for economic viability are land, labor, credit, and knowledge (Leslie 2019). I asked, how do alternative farmers vary in their strategies for accessing key resources for farm viability? Do these strategies correlate with farmers' relative social and economic power? And for farmers who access key resources through relational infrastructure rather than markets, under what conditions are these socially embedded strategies effective, and when are they prone to deterioration, cooptation, or burnout? I found that farmers with the narrowest social and environmental goals were also the most economically and socially privileged and most likely to access key resources through market-embedded means. In contrast, the farmers with the broadest social and environmental goals tended to be the most economically and socially marginalized and had the least economic means to access key resources necessary for enacting those goals. Instead, these agroecological farmers were the most likely to access key resources through trust-based social ties as a resistance strategy to their experiences of marginalization. I concluded by offering a framework – "social mycorrhiza" – that describes the social relational infrastructure agroecological farmers often relied on to access key resources for farm viability. Social mycorrhiza uses the ecological concept of mycorrhiza to visualize social networks where actors with simultaneous market interests and movement values access resources through social relational ties. It highlights cooptation – when economic interests are likely to prevail over social values, and burnout – when movement priorities unsustainably overshadow economic viability. Social mycorrhiza describes the social relational infrastructure of agroecological economies. In doing so, it makes two main contributions. First, scholars who study the social side of alternative agriculture tend to focus on social movement organizations, whereas social mycorrhiza highlights the dispersed social networks farmers often rely on to further movement goals. Second, those who study the economic side of alternative agriculture

tend to neglect the role of identity in resource flows, while social mycorrhiza draws attention to how identity-based relational networks undergird farmers' privilege, marginalization, and resistance strategies in accessing key resources for farm viability. This chapter's research suggests that realizing alternative agriculture's social and environmental potential demands increasing equitable access to key resources both from above by the state and from below by strengthening mutualistic social mycorrhiza throughout the food system.

***

What are the key implications of these findings for how we understand the political economy of alternative food systems (i.e. for theory) and for what we can do to make food systems more socially just and ecologically sustainable (i.e. for practice)? In the following, I discuss the significance of this research for theory and practice together because, as Marx said, "philosophers have only interpreted the world differently, but the point is to change it" (Engels 2020 [1886]: 64). Similarly, I follow ecowomanism – a field led by and grounded in the experiences of Black women – in its call to approach environmental justice scholarship through praxis by using theory for "taking action" (Harris 2016; 2017: 197). So, what are the broader implications of this research for how we understand alternative food economies, and how we can change them?

Understanding farm economic viability demands actually getting to know farmers to see how they make economic decisions in their social and environmental context. In contrast to the prevailing methodologies in the field of agricultural economics, my ethnography drew on (1) the extended case method (Burawoy 2009), which encouraged participation in farmers' daily lives,

(2) incorporated comparison (McMichael 1990) which pushed me to see how farmers' lives are related to each other in a shared history, and (3) feminist commodity chain analysis (Collins 2014), which brought to light the social and environmental factors shaping farmers' supply chain decision making and capacity for action. Taken together, this research encourages theories of agricultural economics and programming designed for farm economic viability to center farmers' social and ecological context and how the power relations that constitute that context affect farmers' ability to actually make economic decisions. This approach stands in stark contrast to the "willingness to pay" language pervasive in agricultural economics.

Discerning similarities and differences between farmers in context is important for seeing beyond the empirically-dubious labels that scholars and practitioners alike rely on to describe alternative agriculture. Alternative farmers are not a unified group nor simply bifurcated between capitalist-friendly certified organics and the socialist-leaning radical rest (chapter two). This ethnography revealed six subgroups of alternative farmers that had distinct economic and social networks and varied on continuums from market to social and ecological embeddedness (Hinrichs 2000; Morris and Kirwan 2011). This research suggests that we all must be wary of what the plethora of emerging discourses to describe alternative agriculture really mean, and when those words are being used primarily to sell food rather than describe practice. Smokescreens like "family farming" are not analytically useful and yet are used by advocates from all political persuasions (Leslie, Wypler, and Bell 2019; Strange 2008 [1988]). As this research has shown, farms under the umbrella of agroecology as well as certified organics have a wide range of social and environmental outcomes. This does not mean that there are no discernable differences between groups that use different words to describe themselves, as this research has repeatedly demonstrated. Rather, it means that for scientists to make empirical

claims and for practitioners to see the social and environmental outcomes they desire, we all must be cautious about assuming what discourse is actually describing and instead look to evidence of actual practices.

Comparing alternative farmers' social and ecological practices informs debates about the meaning of agroecology. Many scholars – especially in the U.S. – understand agroecology as limited to its biophysical aspects and agricultural practices. Other scholars – especially in the Global South – see these same biophysical and agricultural characteristics as inseparable from the social movement and political sides of agroecology, especially the principle of food sovereignty. Keeping food sovereignty married to agroecology is central to what prominent agroecologist Miguel Altieri (2020: 4) sees as "defending what for me are the true identity and goals of agroecology as a necessary strategy for confronting the increasing cooptation of the term which promotes a watered-down version of agroecology stripped of its social and political principles." This research suggests that most – but not all – agroecologists in Argentina see food sovereignty as part and parcel of agroecology. Perhaps more importantly, this project has demonstrated that all agroecological farmers exist on a food security continuum of market to social embeddedness, from corporate global trade to local food sovereignty (chapter two). Thus, this research suggests that agroecologists aligned with Altieri's food sovereignty perspective face a dual challenge of not only defending against cooptation by those who disregard agroecology's social principles, but also of bolstering a theory and practice of continual improvement toward food sovereignty by agroecologists who share Altieri's perspective. I offer a foundation for such a theory with "the alternative agriculture house" in chapter three.

Agroecologists – like all alternative farmers – vary in their social and ecological embeddedness, so this research has discerned three indicators for assessing farms' social and

ecological outcomes that are grounded in empirical realities, not alternative food discourses. This research suggests that building alternative food economies for justice and sustainability demands supporting farms in continually improving at growing:

1. *Food sovereignty*, as evidenced by providing access to culturally appropriate, healthy, toxin-free food in ways that are decided by local democratic decision-making processes (chapter two);
2. *Soil organic matter*, which is measurable with a standard soil test, grows best in a toxin-free environment, and is central to increasing biodiversity as well as climate mitigation and adaptation (chapter three), and;
3. *Mutualistic social mycorrhiza*, or social ties that facilitate material and ideal resource access in a way where actors trust that others will act with both their values and economic interests in mind, over time (chapter four).

Furthermore, this research has demonstrated that all of these three indicators will continue to be stunted in their growth without uprooting:

1. *Racial, gender, and sexual injustices*, which are not only abhorrent on their own terms, but are also roadblocks to expanding ecological sustainability and economic viability on farms (chapters two, three, and four), especially in relation to farmers' access to the key resources of land, labor, credit, and knowledge (chapter four), and;
2. *Market-embeddedness*, which does not mean abandoning markets, but rather mitigating their untethered drive toward economic concentration and competition by redefining value to prioritize social and environmental goods (what Collins (2017) calls "revaluation projects").

These three indicators – as well as the social and market forces that mold them – are present to varying degrees on all types of farms and offer more concrete ways of interpreting the environmental and social qualities of farms than politically malleable discourses like "local" (Winter 2003) and "family farming" (Leslie, Wypler, and Bell 2019).

These indicators are never fully achievable, and that is precisely the point; minimum-standard based regulations and certification systems align with market-embeddedness to incentivize a race to the bottom (chapter three; Guthman 2004 [2014]). This research suggests that governance systems of food supply chains that seek to prioritize social and environmental public goods must also incorporate a set of aspirational values where the assessment standard is based on continual improvement, not absolute standing. Importantly, both of these approaches must be taken together; regulatory systems will be most effective when they have both a "floor" of minimum standards as well as a "roof" of aspirational values. This is what organic certification and agroecology represent, respectively, in "the alternative agriculture house" (chapter three). From a social justice perspective, the problem with the organic standards is that they create a floor underneath only those who can afford it. The organic standards mainly ensure the absence of harmful toxins. In other words, the organic standards represent a food safety minimum standard for those who have the privilege of buying into it, while the rest stand below that, on the floor of national food safety standards (which the organic movement has demonstrated do not adequately ensure safety). The problem with the design of the governance system of organic certification is not that it represents a minimum standard, but that it is a minimum standard not applied to all. In addition, it represents a minimum standard primarily in the realm of toxics, less so with biodiversity, minimally with the climate, and not at all with food security or other social concerns like labor. Yet, this research suggests that the organic floor must

be strengthened and expanded, not abandoned. Furthermore, it must be combined with a social agroecological vision; the challenge of agroecology is not only to prevent cooptation (the pull of market-embeddedness), but to envision a different future defined by collective social and ecological values and to encourage movement toward them by all, starting wherever participants are in their context.

Social movements and the state play critical roles in the alternative agriculture house because they are the entities with the most power to act as counterweights to marketization,[202] which pulls down both minimum and aspirational standards. It is the role of social movements to define the height and shape of the roof to which we aspire and of the floor that defines the extent of socially acceptable inequalities. It is the role of the state to enforce not only minimum standards, but also to implement systems for measuring improvement (as it does, for instance, in education). And being more explicit about these standards is not "more regulation;" the state's absence of standards is "negative regulation" that governs someone's *freedom to* do something as much as it governs another's *freedom from* having that thing done to them (Bell and Lowe 2000). The state, in capitalism, typically operates under a "growth consensus" of marketization (Logan and Molotch 2007 [1987]). However, this is not due to some "natural" quality of states, but rather is a result of market-embedded social movements that lobby state policy and occupy state positions. It is the role of socially and ecologically embedded social movements to act as counterweights to the pull of marketization and to influence state policy so that it reflects those values (Polanyi 2001 [1944]). This research suggests that these "revaluation projects" (Collins 2017) are more effective when they extend mutualistic social mycorrhiza into the state, rather

[202] Marketization is the term that Burawoy (2015) uses to call what I have been describing as the pull of market-embeddedness. Contemporary, or "third-wave" marketization is what others call neoliberalism.

than eschewing state politics altogether – which has the effect of leaving powerful state positions and policy to those with contrary values (chapter four).

Part of the allure of alternative agriculture is that many people are disillusioned by state politics, and they see alternative agriculture as a way to start creating the world they want to see on a local level without waiting for an unfriendly state to catch up. As this research has shown, local food systems' development trajectories are inextricably tied to those of global food systems: both certified organic and industrial. Their futures are tied to each other; the local and the global shape each other every time a consumer buys a piece of food from one type of food supply chain and not another. For this reason, it is important to be cautious of critiques of one type of food supply chain in isolation of the others (e.g. critiques of how much farmers charge for certified organic food). As the president of Cereales Orgánicos put it, "Organic products do not pollute. Today, who pays the difference for a better environment is who buys, no? Polluter pays principle. The person who pollutes pays. But here who pollutes does not pay. The consumer pays, the person who wants to eat healthfully."[203] The issue is not organics' higher minimum standard, but organics' relationship with the global industrial food system; that the organic floor does not apply to all. And the problem is not that farmers charge too much – farmers should be compensated for what they grow – but that everyone else's wages are too low to afford poison-free food. At the same time, the challenge for local agroecological alternatives is that they must be applied drastically more broadly if they are to realize their potential to address the global socioecological problems of food insecurity, toxic exposures, biodiversity loss, and the climate

[203] "El producto orgánico no lo contamina. Hoy, el que paga la diferencia por un ambiente mejor es el que compra, ¿no? Polluter pays principle. El que contamina paga. Pero aquí el que contamina no paga. Paga el que consume, el que quiere consumir sano." (Cereales Orgánicos)

crisis. So, it is absolutely necessary to have more people practicing agroecological values in their localities, but we cannot expect this to be sufficient without simultaneously engaging the state and the global industrial food system.

In other words, this dissertation about "alternative" food systems concludes with a call to write "alternative" out of existence. Rather than berating certified organics (Gershuny 2017), radical agroecologists (Holt-Giménez and Shattuck 2011) may be more effective by pushing the organic movement to deepen its social embeddedness and advocating that organic standards become the new floor for national food safety standards – while simultaneously implementing wage increases or another form of subsidy to make the right to food attainable by all (González 2014). And rather than seeing agroecology as a diluted, unenforceable form of certified organics, the organic movement would be well served to acknowledge agroecology's broader goals as well as the importance of meeting conventional farmers where they are, and engaging in a process of continual improvement toward socially and ecologically embedded values.

Finally, those of us residing in the Global North who are advocating for *any* type of alternative food system must recognize that even local economic development and local agricultural sustainability are much more tied to global processes than we typically realize. The local is linked to thousands of other locals, through global commodity chains and their interactions with local supply chains (Serrano and Brooks 2019). There is no such thing as local food justice until justice is realized along all of the nodes of interacting supply chains that deliver food to that locality. While food justice literature has been largely U.S.-focused, it is inherently a global social – and environmental – issue (González 2015). Because our food supply chains cross national borders, a Green New Deal for agriculture is necessarily a project with a global scope. And because ideas and social ties cross national borders as well, social mycorrhiza is not

limited to the local either. It will take both policy from above and mutualistic social mycorrhiza from below to leave a more promising food future to the next generation.

Works cited

Ackoff, Sophie, Andrew Bahrenburg, and Lindsey Lusher Schute. 2017. "Building a Future with Farmers: Results and Recommendations from the National Young Farmer Survey." National Young Farmers Coalition. https://www.youngfarmers.org/wp-content/uploads/2019/03/NYFC-Report-2017_LoRes_Revised.pdf.

Acosta, María Cristina, and Griselda Verbeke. 2009. "La Cooperación como Estrategia de Desarrollo en Redes Asociativas." *Pecvnia* 9: 1–25.

Adams, Damian C., and Matthew J. Salois. 2010. "Local versus Organic: A Turn in Consumer Preferences and Willingness-to-Pay." *Renewable Agriculture and Food Systems* 25 (4): 331–41.

Aistara, Guntra A. 2018. *Organic Sovereignties: Struggles over Farming in an Age of Free Trade*. University of Washington Press.

Alkon, Alison Hope, and Teresa Marie Mares. 2012. "Food Sovereignty in US Food Movements: Radical Visions and Neoliberal Constraints." *Agriculture and Human Values* 29 (3): 347–59.

Altieri, Miguel. 2009. "El Estado Del Arte de La Agroecología: Revisando Avances y Desafíos." Pp. 69-94 in *Vertientes Del Pensamiento Agroecológico: Fundamentos y Aplicaciones*, edited by Miguel Altieri. Sociedad Científica Latinoamerica de Agroecología.

Altieri, Miguel A. 2020. "How Bugs Showed Me the Way to Agroecology." *Agroecology and Sustainable Food Systems*: 1–5.

Altieri, Miguel A., and Victor Manuel Toledo. 2011. "The Agroecological Revolution in Latin America: Rescuing Nature, Ensuring Food Sovereignty and Empowering Peasants." *The Journal of Peasant Studies* 38 (3): 587–612.

Angulo, Nedda, Mercedes Caracciolo, Pilar Foti, and Norma Sanchís. 2011. *Economía Social y Solidaria. Políticas Públicas y Género*. Asociación Lola Mora.

Arbenz, M., D. Gould, and C. Stopes. 2016. "Organic 3.0–for Truly Sustainable Farming and Consumption." IFOAM Organics International. https://www.ifoam.bio/sites/default/files/2020-05/Organic3.0_v.2_web.pdf.

Arizpe, Nancy, and Fernando Locatelli. 2009. "La Expansión de los Agrotóxicos y los Impactos en la Salud Humana." *Ecología Política* 37: 84–89.

Bair, Jennifer. 2005. "Global Capitalism and Commodity Chains: Looking Back, Going Forward." *Competition & Change* 9 (2): 153–180.

Bair, Jennifer. 2009. “Global Commodity Chains: Genealogy and Review.” Pp. 1-34 in *Frontiers of Commodity Chain Research*, edited by Jennifer Bair. Stanford University Press.

Barsky, Osvaldo, and Jorge Gelman. 2012. *Historia del Agro Argentino: Desde la Conquista Hasta Comienzos del Siglo XXI*. Sudamericana.

Bell, Michael Mayerfeld. 1998. “The Dialogue of Solidarities, or Why the Lion Spared Androcles.” *Sociological Focus* 31 (2): 181–199.

Bell, Michael Mayerfeld, and Philip Lowe. 2000. “Regulated Freedoms: The Market and the State, Agriculture and the Environment.” *Journal of Rural Studies* 16 (3): 285–94.

Bell, Michael Mayerfeld, and Stéphane Bellon. 2018. “Generalization without Universalization: Towards an Agroecology Theory.” *Agroecology and Sustainable Food Systems* 42 (6): 605–11.

Bell, Michael Mayerfeld, and Philip Lowe. 2000. “Regulated Freedoms: The Market and the State, Agriculture and the Environment.” *Journal of Rural Studies* 16 (3): 285–94.

Bell, Michael Mayerfeld, Loka L. Ashwood, Isaac Sohn Leslie, and Laura Hanson Schlachter. 2021. *An Invitation to Environmental Sociology*, *Sixth Edition.* SAGE.

Beus, Curtis E., and Riley E. Dunlap. 1990. “Conventional versus Alternative Agriculture: The Paradigmatic Roots of the Debate.” *Rural Sociology* 55 (4): 590–616.

Bilenca, David, Mariano Codesido, Carlos González Fischer, Lorena Pérez Carusi, Emmanuel Zufiaurre, and Agustín Abba. 2012. “Impactos de la Transformación Agropecuaria sobre la Biodiversidad en la Provincia de Buenos Aires.” *Revista del Museo Argentino de Ciencias Naturales* 14 (2): 189-198.

Bourdieu, Pierre. 1979. *Algeria 1960: The Disenchantment of the World: The Sense of Honour: The Kabyle House or the World Reversed*. Cambridge University Press.

Burawoy, Michael. 2003. “Revisits: An Outline of a Theory of Reflexive Ethnography.” *American Sociological Review* 68: 645–79.

Burawoy, Michael. 2009. *The Extended Case Method: Four Countries, Four Decades, Four Great Transformations, and One Theoretical Tradition*. University of California Press.

Burawoy, Michael. 2013. “Ethnographic Fallacies: Reflections on Labour Studies in the Era of Market Fundamentalism.” *Work, Employment and Society* 27 (3): 526–36.

Burawoy, Michael. 2015. “Facing an Unequal World.” *Current Sociology* 63 (1): 5–34.

Cáceres, Daniel. 2005. “Non-Certified Organic Agriculture: An Opportunity for Resource-Poor Farmers?” *Outlook on Agriculture* 34 (3): 135–40.

Cáceres, Daniel M. 2015. “Accumulation by Dispossession and Socio-Environmental Conflicts Caused by the Expansion of Agribusiness in Argentina.” *Journal of Agrarian Change* 15 (1): 116–47.

Caracciolo, Mercedes, Paula Fontana, and Augusto de Haro. 2016. “Situación de la Institucionalidad de Apoyo a la Innovación Comercial y de los Procesos de Gestión Comercial de la Agricultura Familiar en la Argentina.” *Instituto Interamericano de Cooperación Para La Agricultura*.

Carballo, Carlos G. 2018. *Soberanía Alimentaria y Desarrollo: Caminos y Horizontes En Argentina*. Mónadanomada.

Carter, Angie. 2017. “Placeholders and Changemakers: Women Farmland Owners Navigating Gendered Expectations.” *Rural Sociology* 82 (3): 499–523.

Catalano, José, and Luis Mosse. 2013. “Agricultura Familiar y el Rol del Estado: Organizarse para Crecer, Desarrollarse para Transformar la Realidad.” *Voces en el Fénix* 4 (28): 72–81.

Casadinho, Osvaldo Javier Souza, and Silvia Liliana Bocero. 2008. “Agrotóxicos: Condiciones de Utilización en la Horticultura de la Provincia de Buenos Aires (Argentina).” *Revista Iberoamericana de Economía Ecológica* 9: 87–101.

Cittadini, Roberto, Luiz Caballero, Mariana Moricz, and Florencia Mainella, eds. 2010. *Economía Social y Agricultura Familiar: Hacia la Construcción de Nuevos Paradigmas de Intervención*. Ediciones INTA.

Clarín. 2008. “La UNESCO Aprobó una Iniciativa para Proteger al Parque Pereyra Iraola,” January 21, 2008. https://www.clarin.com/ultimo-momento/unesco-aprobo-iniciativa-proteger-parque-pereyra-iraola_0_rkYeyI0A6Fx.html.

Collins, Jane L. 2003. *Threads: Gender, Labor, and Power in the Global Apparel Industry*. University of Chicago Press.

Collins, Jane L. 2005. “New Directions in Commodity Chain Analysis of Global Development Processes.” Pp. 3-17 in *New Directions in the Sociology of Global Development*, edited by Frederick H. Buttel and Philip McMichael. Emerald Group Publishing Limited.

Collins, Jane L. 2014. “A Feminist Approach to Overcoming the Closed Boxes of the Commodity Chain.” Pp. 27-37 in *Gendered Commodity Chains: Seeing Women’s Work and Households in Global Production*, edited by Wilma A. Dunaway. Stanford University Press.

Collins, Jane L. 2017. *The Politics of Value: Three Movements to Change How We Think about the Economy*. University of Chicago Press.

Colman, Daniela Lorena. 2009. “Las Ferias Francas: Una Forma de Comercialización de la Agricultura Familiar.” Instituto Nacional de Tecnología Agropecuaria.

Craviotti, Clara. 2015. “Argentina’s Agri-Food Transformations in the Context of Globalization.” Pp. 78–96 in *Handbook of the International Political Economy of Agriculture and Food*, edited by Alessandro Bonanno and Lawrence Busch. Elgar.

Craviotti, Clara, and Silvina Pardías. 2013. “Los Espacios de Resistencia de La Agricultura Familiar: Estilos Productivos Lecheros en Entre Ríos, Argentina.” *Ager: Revista de Estudios Sobre Despoblación y Desarrollo Rural* 3: 1–29.

Craviotti, Clara, and Ronald Soleno Wilches. 2015. “Circuitos Cortos de Comercialización Agroalimentaria: Un Acercamiento Desde la Agricultura Familiar Diversificada en Argentina.” *Mundo Agrario* 16 (33): 1–19.

Crowley, Morgan A., Kara E. Shannon, Isaac Sohn Leslie, Andrea Jilling, Cameron D. McIntire, and Emily Kyker-Snowman. 2019. “Sustainable Beef Production in New England: Policy and Value-Chain Challenges and Opportunities.” *Agroecology and Sustainable Food Systems* 43 (3): 274–298.

Cummins, Ronnie. 2020. *Grassroots Rising: A Call to Action on Climate, Farming, Food, and a Green New Deal*. Chelsea Green Publishing.

Day-Farnsworth, Lindsey, and Michelle Miller. 2014. “Networking Across the Supply Chain: Transportation Innovations in Local and Regional Food Systems.” University of Wisconsin, Madison. http://dx.doi.org/10.9752/TS202.06-2014.

De Schutter, Olivier. 2010. “Report Submitted by the Special Rapporteur on the Right to Food.” https://undocs.org/A/HRC/16/49.

Declaration of Nyéléni. 2007. “Declaration of the Forum for Food Sovereignty, Nyéléni.” https://www.nyeleni.org/spip.php?article290.

Demeter Association. 2017. “Biodynamic Farm Standard.” https://www.demeter-usa.org/downloads/Demeter-Farm-Standard.pdf.

Desmarais, Annette Aurélie. 2007. *La Vía Campesina: Globalization and the Power of Peasants*. Pluto Press.

DeVore, Brian. 2016. “Feed the Plant, Starve the Soil.” Land Stewardship Project. January 4, 2016. https://landstewardshipproject.org/posts/792.

Diani, Mario, and Ann Mische. 2015. “Network Approaches and Social Movements.” Pp. 306–325 in *The Oxford Handbook of Social Movements*, edited by Donatella Della Porta and Mario Diani. Oxford University press.

Dixson, Dante D., and Frank C. Worrell. 2016. “Formative and Summative Assessment in the Classroom.” *Theory Into Practice* 55 (2): 153–59.

do Carmo, Roberto Luiz and María Franci Alvarez. 2009. “Expansión Del Cultivo de Soja, Salud y Medio Ambiente. Situación En Córdoba (Argentina) y Mato Grosso (Brasil).” Pp. 183-200 in *Población y Medio Ambiente en Latinoamérica y el Caribe: Cuestiones Recientes y Desafíos para el Futuro,* edited by Roberto Luiz do Carmo and Gilberto Javier Cabrera Trimiño. Asociación Latinoamericana de Población.

Engels, Friedrich. 2020 [1886]. *Ludwig Feuerbach and the End of Classical German Philosophy*. Origami Books.

Englund, Oskar, and Göran Berndes. 2015. “How do Sustainability Standards Consider Biodiversity?” *WIREs Energy and Environment* 4 (1): 26–50.

Enstad, Nan. 2018. *Cigarettes, Inc.: An Intimate History of Corporate Imperialism*. University of Chicago Press.

European Commission. 2019. *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: The European Green Deal.* COM 640, pp. 1-24.

FAO. 2016. “52 Profiles on Agroecology: La Aurora.” http://www.fao.org/3/a-be861s.pdf.

FAO, IFAD, UNICEF, WFP and WHO. 2020. *The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets*. Food and Agriculture Organization of the United Nations.

Farm to Plate. 2020. “Getting to 2020: Goals and Indicators.” https://www.vtfarmtoplate.com/getting-to-2020/1-total-local-consumption.

Feito, María Carolina. 2013. “Agricultura Familiar con Enfoque Agroecológico en Zonas Periurbanas. Análisis de una Experiencia de Intervención Para el Desarrollo Rural en Lujan (Buenos Aires, Argentina).” *Nadir: Revista Electrónica de Geografía Austral* 5 (1): 1–19.

Feldman, Mackenzie, John Ikerd, Seth Watkins, Charlie Mitchell, Johnny Bowman, and Greg Carlock. 2020. “Regenerative Farming and the Green New Deal.” Data for Progress, Green New Deal Policy Series: Food & Agriculture. https://filesforprogress.org/memos/regenerative-farming-and-the-green-new-deal.pdf.

Folke, Carl. 2006. “Resilience: The Emergence of a Perspective for Social–Ecological Systems Analyses.” *Global Environmental Change* 16 (3): 253–67.

Foti, Pilar. 2011. “Participación de las Mujeres en las Políticas Dirigidas a la Economía Social y Solidaria. Argentina.” Pp. 33-94 in *Economía Social y Solidaria. Políticas Públicas y Género*, edited by Nedda Angulo, Mercedes Caracciolo, Pilar Foti, and Norma Sanchís, Asociación Lola Mora.

Freidberg, Susanne. 2001. “On the Trail of the Global Green Bean: Methodological Considerations in Multi-Site Ethnography.” *Global Networks* 1 (4): 353–368.

Friedmann, Harriet. 1978. “World Market, State, and Family Farm: Social Bases of Household Production in the Era of Wage Labor.” *Comparative Studies in Society and History* 20 (4): 545–586.

Friedmann, Harriet. 2005. “From Colonialism to Green Capitalism: Social Movements and Emergence of Food Regimes.” Pp. 227-264 in *New Directions in the Sociology of Global Development*, edited by Frederick H. Buttel and Philip McMichael. Emerald Group Publishing Limited.

Fuchshofen, Nicolas, Darya Hirsch, and Lilian Irene Brodtmann. 2018. “Production, Consumption and the Actor’s Landscape in the Argentinean Organic Agricultural and Food Sector.” *International Journal on Food Systems Dynamics* 9 (5): 419–37.

Gargoloff, Natalia Agustina, María Margarita Bonicatto, and Santiago Javier Sarandón. 2009. “Análisis Del Conocimiento y Manejo de la Agrobiodiversidad en Horticultores Capitalizados, Familiares y Orgánicos de La Plata, Argentina.” *Cadernos de Agroecologia* 4 (1): 1724-28.

Gereffi, Gary. 1994. “The Organization of Buyer-Driven Global Commodity Chains: How US Retailers Shape Overseas Production Networks.” Pp. 95-122 in *Commodity Chains and Global Capitalism*, edited by Gary Gereffi and Miguel Korzeniewicz. Praeger.

Gershuny, Grace. 2017. *Organic Revolutionary: A Memoir of the Movement for Real Food, Planetary Healing, and Human Liberation*. Joes Brook Press.

Glaeser, Edward L., Rafael Di Tella, and Lucas Llach. 2018. “Introduction to Argentine Exceptionalism.” *Latin American Economic Review* 27 (1): 1-22.

Gliessman, Steve. 2013. “Agroecology: Growing the Roots of Resistance.” *Agroecology and Sustainable Food Systems* 37 (1): 19–31.

Golsberg, Celeste, Damian Alcoba, María Elena Aradas, Guillermo Castiglione, Guillermo Castro, Daniela Coleman, Sergio Dumrauf, and Ricardo Peranich. 2010. “Las Ferias de la Agricultura Familiar en la Argentina.” Buenos Aires: Instituto Nacional de Tecnología Agropecuaria.

Gonzalez, Carmen G. 2006. “Markets, Monocultures, and Malnutrition: Agricultural Trade Policy through an Environmental Justice Lens.” *Michigan State Journal of International Law* 14: 345–82.

Gonzalez, Carmen G. 2014. “International Economic Law and the Right to Food.” Pp. 165–193 in *Rethinking Food Systems*, edited by Nadia C.S. Lambek, Priscilla Claeys, Adrienna Wong, and Lea Brilmayer, Springer.

Gonzalez, Carmen G. 2015. “Food Justice: An Environmental Justice Critique of the Global Food System.” Pp. 74–108 in *International Environmental Law and the Global South*, edited by Shawkat Alam, Sumudu Atapattu, Carmen G. Gonzalez, and Jona Razzaque. Cambridge University Press.

Gras, Carla. 2009. “Changing Patterns in Family Farming: The Case of the Pampa Region, Argentina.” *Journal of Agrarian Change* 9 (3): 345–64.

Gras, Carla. 2012. “Cambio Agrario y Nueva Ruralidad: Caleidoscopio de la Expansión Sojera en la Región Pampeana.” *Trabajo y Sociedad* 18: 7–24.

Guthman, Julie. 2014 [2004]. *Agrarian Dreams: The Paradox of Organic Farming in California*. University of California Press.

Harris, Melanie L. 2016. “Ecowomanism.” *Worldviews: Global Religions, Culture, and Ecology* 20 (1): 5–14.

Harris, Melanie L. 2017. “Ecowomanism and Ecological Reparations.” Pp. 195-202 in *The Wiley Blackwell Companion to Religion and Ecology*, edited by John Hart. John Wiley & Sons Ltd.

Henderson, George. 1998. “Nature and Fictitious Capital: The Historical Geography of an Agrarian Question.” *Antipode* 30 (2): 73–118.

Hinrichs, C. Clare. 2000. “Embeddedness and Local Food Systems: Notes on Two Types of Direct Agricultural Market.” *Journal of Rural Studies* 16 (3): 295–303.

Holt-Giménez, Eric. 2017. *A Foodie’s Guide to Capitalism: Understanding the Political Economy of What We Eat*. Monthly Review Press.

Holt-Giménez, Eric, and Miguel A. Altieri. 2013. “Agroecology, Food Sovereignty, and the New Green Revolution.” *Agroecology and Sustainable Food Systems* 37 (1): 90–102.

Holt-Giménez, Eric, and Annie Shattuck. 2011. “Food Crises, Food Regimes and Food Movements: Rumblings of Reform or Tides of Transformation?” *The Journal of Peasant Studies* 38 (1): 109–44.

Holt-Giménez, Eric, and Yi Wang. 2011. "Reform or Transformation? The Pivotal Role of Food Justice in the US Food Movement." *Race/Ethnicity: Multidisciplinary Global Contexts* 5 (1): 83–102.

Iermanó, María José, and Santiago Javier Sarandón. 2016. "Rol de la Agrobiodiversidad en Sistemas Familiares Mixtos de Agricultura y Ganadería Pastoril en la Región Pampeana Argentina: Su Importancia para la Sustentabilidad de los Agroecosistemas." *Revista Brasileira de Agroecologia* 11 (2): 94-103

IFOAM. 2020. "Global Organic Area Continues to Grow." https://ifoam.bio/global-organic-area-continues-grow.

IICA. 2009. *La Producción Orgánica En La Argentina. Compilación de Experiencias Institucionales y Productivas*. Instituto Interamericano de Cooperación para la Agricultura, Servicio Nacional de Sanidad y Calidad Agroalimentaria, and Ministerio de Agricultura, Ganadería y Pesca. http://www.alimentosargentinos.gob.ar/contenido/valorAr/organicos/publicaciones/Contenidoiica.pdf.

INTA. 2011. "Prohuerta." Instituto Nacional de Tecnología Agropecuaria. https://inta.gob.ar/documentos/prohuerta.

IPBES. 2020. "Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services." https://ipbes.net/global-assessment.

IPCC. 2014. *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf.

IPCC. 2018. *Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty*. https://www.ipcc.ch/sr15/about/content-map/.

Jaffee, Daniel. 2012. "Weak Coffee: Certification and Co-Optation in the Fair Trade Movement." *Social Problems* 59 (1): 94–116.

Jaffee, Daniel, and Philip H. Howard. 2010. "Corporate Cooptation of Organic and Fair Trade Standards." *Agriculture and Human Values* 27 (4): 387–99.

Jarosz, Lucy. 2000. "Understanding Agri-Food Networks as Social Relations." *Agriculture and Human Values* 17 (3): 279–283.

Jarosz, Lucy. 2009. “The Political Economy of Global Governance and the World Food Crisis: The Case of the FAO.” *Review (Fernand Braudel Center)*, 37–60.

Jessop, Bob. 2007. “Knowledge as a Fictitious Commodity: Insights and Limits of a Polanyian Perspective.” Pp. 115–133 in *Reading Karl Polanyi for the Twenty-First Century*, edited by Ayşe Buğra and Kaan Ağartan. Palgrave Macmillan.

Jessop, Bob. 2019. “A Polanyian Paradox: Money and Credit as Fictitious Commodities, Financialization, Finance-Dominated Accumulation, and Financial Crises.” Pp. 75-90 in *Capitalism in Transformation: Movements and Countermovements in the 21st Century*, edited by Roland Atzmüller, Brigitte Aulenbacher, Ulrich Brand, Fabienne Décieux, Karin Fischer, and Birgit Sauer. Edward Elgar Publishing.

Johnston, Josée, Andrew Biro, and Norah MacKendrick. 2009. “Lost in the Supermarket: The Corporate-Organic Foodscape and the Struggle for Food Democracy.” *Antipode* 41 (3): 509–32.

Kabir, Zahangir. 2005. “Tillage or No-Tillage: Impact on Mycorrhizae.” *Canadian Journal of Plant Science* 85 (1): 23–29.

Kloppenburg, Jack, John Hendrickson, and George W. Stevenson. 1996. “Coming in to the Foodshed.” *Agriculture and Human Values* 13 (3): 33–42.

Kremen, Claire, and Albie Miles. 2012. “Ecosystem Services in Biologically Diversified versus Conventional Farming Systems: Benefits, Externalities, and Trade-Offs.” *Ecology and Society* 17 (4): 1–25.

Lapegna, Pablo. 2016. *Soybeans and Power: Genetically Modified Crops, Environmental Politics, and Social Movements in Argentina*. Oxford University Press.

Lee, Richard Philip. 2013. “The Politics of International Agri-Food Policy: Discourses of Trade-Oriented Food Security and Food Sovereignty.” *Environmental Politics* 22 (2): 216–34.

Lengnick, Laura. 2015. *Resilient Agriculture: Cultivating Food Systems for a Changing Climate*. New Society Publishers.

Lengnick, Laura, Michelle Miller, and Gerald G. Marten. 2015. “Metropolitan Foodsheds: A Resilient Response to the Climate Change Challenge?” *Journal of Environmental Studies and Sciences* 5 (4): 573–92.

Leslie, Isaac Sohn. 2017a. “Improving Farmers Markets and Challenging Neoliberalism in Argentina.” *Agriculture and Human Values* 34 (3): 729–42.

Leslie, Isaac Sohn. 2017b. “Queer Farmers: Sexuality and the Transition to Sustainable Agriculture.” *Rural Sociology* 82 (4): 747–71.

Leslie, Isaac Sohn. 2019. “Queer Farmland: Land Access Strategies for Small-Scale Agriculture.” *Society & Natural Resources* 32 (8): 928–46.

Leslie, Isaac Sohn, and Monica M. White. 2018. “Race and Food: Agricultural Resistance in US History.” Pp. 347-364 in *Handbook of the Sociology of Racial and Ethnic Relations*, edited by Pinar Batur and Joe R. Feagin. Springer.

Leslie, Isaac Sohn, Jaclyn Wypler, and Michael Mayerfeld Bell. 2019. “Relational Agriculture: Gender, Sexuality, and Sustainability in U.S. Farming.” *Society & Natural Resources* 32 (8): 853–74.

Liang, Chao, Wulf Amelung, Johannes Lehmann, and Matthias Kästner. 2019. “Quantitative Assessment of Microbial Necromass Contribution to Soil Organic Matter.” *Global Change Biology* 25 (11): 3578–90.

Lin, Brenda B. 2011. “Resilience in Agriculture through Crop Diversification: Adaptive Management for Environmental Change.” *BioScience* 61 (3): 183–193.

Logan, John R, and Harvey Molotch. 2007 [1987]. *Urban Fortunes: The Political Economy of Place*. University of California Press.

Lowder, Sarah K., Jakob Skoet, and Terri Raney. 2016. “The Number, Size, and Distribution of Farms, Smallholder Farms, and Family Farms Worldwide.” *World Development* 87 (November): 16–29.

Magdoff, Fred, John Bellamy Foster, and Frederick H. Buttel, eds. 2000. *Hungry for Profit: The Agribusiness Threat to Farmers, Food, and the Environment*. NYU Press.

Manildo, Luciana. 2013. *La Identidad Chacarera en las Grietas del Paisaje Sojero*. Imago Mundi.

Manuel-Navarrete, David, Gilberto C. Gallopín, Mariela Blanco, Martín Díaz-Zorita, Diego O. Ferraro, Hilda Herzer, Pedro Laterra, et al. 2009. “Multi-Causal and Integrated Assessment of Sustainability: The Case of Agriculturization in the Argentine Pampas.” *Environment, Development and Sustainability* 11 (3): 621–38.

Mazzoleni, Martín. 2020. “Titular de la Nueva Dirección Nacional de Agroecología: ‘Están Lloviendo Agroquímicos.’” La Tinta. February 18, 2020. https://latinta.com.ar/2020/02/direccion-nacional-de-agroecologia-agroquimicos/.

McGee, Julius Alexander. 2015. “Does Certified Organic Farming Reduce Greenhouse Gas Emissions from Agricultural Production?” *Agriculture and Human Values* 32 (2): 255–63.

McMichael, Philip. 1990. “Incorporating Comparison within a World-Historical Perspective: An Alternative Comparative Method.” *American Sociological Review* 55 (3): 385–97.

McMichael, Philip. 1997. “Rethinking Globalization: The Agrarian Question Revisited.” *Review of International Political Economy* 4 (4): 630–62.

McMichael, Philip. 2009. “A Food Regime Genealogy.” *The Journal of Peasant Studies* 36 (1): 139–69.

Meadows, Donella H. 2008. *Thinking in Systems: A Primer*. Chelsea Green Publishing.

Ministerio de Desarrollo Social. 2020. “Comisión Nacional de Microcrédito.” https://www.argentina.gob.ar/desarrollosocial/conami.

Mische, Ann. 2009. *Partisan Publics: Communication and Contention Across Brazilian Youth Activist Networks*. Princeton University Press.

Morris, Carol, and James Kirwan. 2011. “Ecological Embeddedness: An Interrogation and Refinement of the Concept within the Context of Alternative Food Networks in the UK.” *Journal of Rural Studies* 27 (3): 322–30.

Obach, Brian K. 2015. *Organic Struggle: The Movement for Sustainable Agriculture in the United States*. MIT Press.

Odukkathil, Greeshma, and Namasivayam Vasudevan. 2013. “Toxicity and Bioremediation of Pesticides in Agricultural Soil.” *Reviews in Environmental Science and Bio/Technology* 12 (4): 421–44.

Ontl, Todd A., and Lisa A. Schulte. 2012. “Soil Carbon Storage.” *Nature Education Knowledge* 3 (10).

Organic Trade Association. 2019. “Hydroponics.” https://www.ota.com/advocacy/organic-standards/emerging-standards/hydroponics.

Orne, Jason. 2017. *Boystown: Sex and Community in Chicago*. University of Chicago Press.

Palmisano, Tomás. 2018. “Las Agriculturas Alternativas en el Contexto del Agronegocio. Experiencias en la Provincia de Buenos Aires, Argentina.” *Estudios Sociales. Revista de Alimentación Contemporánea y Desarrollo Regional* 28 (51): 1-33.

Papuccio de Vidal, Silvia Noemi. 2014. “Aportes, Estrategias y Demandas de Las Mujeres del Campo al Desarrollo Rural y Agropecuario en Argentina.” Servicio de Publicaciones de la Universidad de Córdoba. https://helvia.uco.es/xmlui/bitstream/handle/10396/12380/2015000001035.pdf?sequence=3.

Patrouilleau, María M., Lisandro E. Martínez, Eduardo Cittadini, and Roberto Cittadini. 2017. “Políticas Públicas y Desarrollo de la Agroecología en Argentina.” Pp. 33-72 in *Políticas*

Públicas a Favor de la Agroecología en América Latina, edited by Eric Sabourin, Maria Mercedes Patrouilleau, Jean-François Le Coq, Luis Vásquez, and Paulo Niederle. Evangraf/Criação Humana, Red PP-AL: FAO.

Patel, Raj, and Jim Goodman. 2019. "A Green New Deal for Agriculture." April 4. Jacobin. https://jacobinmag.com/2019/04/green-new-deal-agriculture-farm-workers.

Pellow, David Naguib. 2007. *Resisting Global Toxics: Transnational Movements for Environmental Justice*. MIT Press.

Pengue, Walter A. 2009. "Cuestiones Económico-Ambientales de las Transformaciones Agrícolas en Las Pampas." *Problemas del Desarrollo* 40 (157): 137–61.

Pepe, Alessandra, Manuela Giovannetti, and Cristiana Sbrana. 2018. "Lifespan and Functionality of Mycorrhizal Fungal Mycelium are Uncoupled from Host Plant Lifespan." *Scientific Reports* 8 (1): 1–10.

Pereira, Sandra G. 2007. "Instituciones, Participación y Capacitación en el Fortalecimiento de la Feria Franca de Oberá, Misiones." Pp. 255-76 in *Territorios en Construcción: Actores, Tramas y Gobiernos: Entre la Cooperación y el Conflicto*, edited by Mabel Manzanal, Mariana Arzeno, and Beatriz Nussbaumer. Ediciones CICCUS.

Pittman, Harrison M., Shannon Mirus, Kathryn Peters, and Randi Reed. 2004. "A Legal Guide to the National Organic Program." National Agricultural Law Center. https://nationalaglawcenter.org/wp-content/uploads/assets/articles/pittman_organicprogram.pdf.

Polanyi, Karl. 2001 [1944]. *The Great Transformation: The Political and Economic Origins of Our Time*. Beacon Press.

Ponisio, Lauren C., Leithen K. M'Gonigle, Kevi C. Mace, Jenny Palomino, Perry de Valpine, and Claire Kremen. 2015. "Diversification Practices Reduce Organic to Conventional Yield Gap." *Proceedings of the Royal Society B: Biological Sciences* 282: 1-7.

Ramankutty, Navin, Zia Mehrabi, Katharina Waha, Larissa Jarvis, Claire Kremen, Mario Herrero, and Loren H. Rieseberg. 2018. "Trends in Global Agricultural Land Use: Implications for Environmental Health and Food Security." *Annual Review of Plant Biology* 69 (1): 789–815.

Raynolds, Laura T. 2004. "The Globalization of Organic Agro-Food Networks." *World Development* 32 (5): 725–43.

Reganold, John P., and Jonathan M. Wachter. 2016. "Organic Agriculture in the Twenty-First Century." *Nature Plants* 2 (2): 1-8.

Rissing, Andrea. 2016. "Alternative Economic Strategies and the Technology Treadmill: Beginning Vegetable Farmers in Iowa." *Economic Anthropology* 3 (2): 304–14.

Rosset, Peter Michael, and María Elena Martínez Torres. 2016. “Agroecología, Territorio, Recampesinización y Movimientos Sociales.” *Estudios Sociales* 25 (47): 273–99.

Sachs, Carolyn E., Mary E. Barbercheck, Kathryn J. Braiser, Nancy Ellen Kiernan, and Anna Rachel Terman. 2016. *The Rise of Women Farmers and Sustainable Agriculture*. University of Iowa Press.

Sarandón, Santiago J., and Mariana E. Marasas. 2017. “Breve Historia de la Agroecología en la Argentina: Orígenes, Evolución y Perspectivas Futuras.” *Agroecología* 10 (2): 93–102.

Schneider, Susan A. 2009. “A Reconsideration of Agricultural Law: A Call for the Law of Food, Farming, and Sustainability.” *William & Mary Environmental Law and Policy Review* 34 (3): 935–63.

SENASA. 2017. “Situación de la Producción Orgánica en la Argentina durante el Año 2016.” Servicio Nacional de Sanidad y Calidad Agroalimentaria. http://www.ciaorganico.net/documypublic/200_Estadistica_SENASA_2016.pdf.

Serrano, Angela. N.D. “Small-Scale Farmers Growing Oil Palm: Mobilizing Local Knowledge to Confront Global Risks.” *The Perspectives of Oil Palm: Smallholders’ Livelihoods in Global Value Chains*.

Serrano, Angela, and Andrew Brooks. 2019. “Who Is Left behind in Global Food Systems? Local Farmers Failed by Colombia’s Avocado Boom.” *Environment and Planning E: Nature and Space* 2 (2): 348–67.

Sevilla Guzmán, Eduardo, and Graham Woodgate. 2013. “Agroecology: Foundations in Agrarian Social Thought and Sociological Theory.” *Agroecology and Sustainable Food Systems* 37 (1): 32–44.

Shiva, Vandana. 2016. *Who Really Feeds the World?: The Failures of Agribusiness and the Promise of Agroecology*. North Atlantic Books.

Siliprandi, Emma, and Gloria Patricia Zuluaga, eds. 2014. *Género, Agroecología y Soberanía Alimentaria: Perspectivas Ecofeministas*. Icaria.

Soper, Rachel. 2016. “Local is Not Fair: Indigenous Peasant Farmer Preference for Export Markets,” *Agriculture and Human Values* 33 (3): 537-48.

Sosa-Hernández, Moisés A., Eva F. Leifheit, Rosolino Ingraffia, and Matthias C. Rillig. 2019. “Subsoil Arbuscular Mycorrhizal Fungi for Sustainability and Climate-Smart Agriculture: A Solution Right Under Our Feet?” *Frontiers in Microbiology* 10 (April): 1–12.

Stevenson, George W., and Rich Pirog. 2008. "Values-Based Supply Chains: Strategies for Agrifood Enterprises of the Middle." Pp. 119-43 in *Food and the Mid-Level Farm: Renewing an Agriculture of the Middle*, edited by Thomas A. Lyson, G.W. Stevenson, and Rick Welsh. The MIT Press.

Strange, Marty. 2008 [1988]. *Family Farming: A New Economic Vision*. University of Nebraska Press.

Stupino, Susana A., Ana C. Ferreira, Jorge Frangi, and Santiago J. Sarandón. 2007. "Agrobiodiversidad Vegetal en Sistemas Hortícolas Orgánicos y Convencionales (La Plata, Argentina)." *Revista Brasileira de Agroecologia* 2 (1).

Svampa, Maristella, and Enrique Viale. 2020. "A View of the Green New Deal from Argentina." Translated by Sara Shields. *Jacobin*, June 17. https://jacobinmag.com/2020/06/green-new-deal-argentina-gran-pacto.

Talbot, John M. 2004. *Grounds for Agreement: The Political Economy of the Coffee Commodity Chain*. Rowman & Littlefield.

Tai, Steph. 2018. "Food Sustainability in the Age of Complex, Global Supply Chains." *Arkansas Law Review* 71 (2): 465-80.

U.S. Congress. 2019. House of Representatives. *House Resolution 109: Recognizing the Duty of the Federal Government to Create a Green New Deal.* 116th Congress, 1st Session, pp. 1-14.

USDA. 2016. "Organic Hydroponics and Aquaponics." United States Department of Agriculture. https://www.ams.usda.gov/sites/default/files/media/Hydroponics%20package.pdf.

UTT. 2020. "Agroecología." Unión de Trabajadores de la Tierra. https://uniondetrabajadoresdelatierra.com.ar/agroecologia/.

Vermont Healthy Soils Coalition. 2020. "Home." https://www.vermonthealthysoilscoalition.org.

Wacquant, Loïc. 2004. "Following Pierre Bourdieu into the Field." *Ethnography* 5 (4): 387–414.

Wezel, Alexander, Stéphane Bellon, Thierry Doré, Charles Francis, Dominique Vallod, and Christophe David. 2009. "Agroecology as a Science, a Movement and a Practice. A Review." *Agronomy for Sustainable Development* 29 (4): 503–15.

White, Monica M. 2018. *Freedom Farmers: Agricultural Resistance and the Black Freedom Movement*. University of North Carolina Press.

Willer, Helga, and Julia Lernoud. 2017. *Organic Agriculture Worldwide 2017: Current Statistics*. Research Institute of Organic Agriculture (FiBL). http://orgprints.org/31197/1/willer-lernoud-2017-global-data-biofach.pdf.

Williams, Justine M., and Eric Holt-Giménez, eds. 2017. *Land Justice: Re-Imagining Land, Food, and the Commons*. Food First Books.

Winter, Michael. 2003. "Embeddedness, the New Food Economy and Defensive Localism." *Journal of Rural Studies* 19 (1): 23–32.

Wittman, Hannah. 2011. "Food Sovereignty: A New Rights Framework for Food and Nature?" *Environment and Society* 2 (1): 87–105.

Wolf, Eric R. 1966. *Peasants*. Prentice-Hall.

Wolford, Wendy. 2010. *This Land Is Ours Now: Social Mobilization and the Meanings of Land in Brazil*. Duke University Press.

Wypler, Jaclyn. 2019. "Lesbian and Queer Sustainable Farmer Networks in the Midwest." *Society & Natural Resources* 32 (8): 947–964.