

SEEDING AGROECOLOGICAL ECONOMIES:

Understanding Seed Grower Cooperatives as models of transformative and pluralistic seed economies.

by

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Abstract

Grower cooperatives in this study participate in the “agroecological seed system,” a system in North America created by farmers, organic plant breeders, and gardeners. These agroecological seed actors have been organizing for decades to rebuild a grower-centered seed system to disrupt or exist in alterity to the dominant seed regime. A closer look at existing seed grower cooperatives sheds light on what kind of empowerment these growers want and the processes by which cooperatives can provide it. The focus of this research were the following seed grower cooperatives or organizations collectively run by seed growers: Triple Divide Organic Seed Cooperative, Snake River Seed Cooperative, BC Eco Seeds Cooperative, and Ujamaa Cooperative Farming Alliance. Two cooperatives in this study are producer-owned, one is producer and worker-owned, and one is a cooperative initiative within a non-profit organization.

The seed cooperatives in this study are navigating how to participate in democratic and reparative seed distribution. Unlike other like-minded seed companies, the cooperatives have to do this work through distributed accountability and collective decision-making, which necessitates creative business practices. These creative cooperative business practices redefine what solvent seed economies could look like. To understand how and why these creative cooperative structures are decided upon, enacted, and changed over time, this research engaged with seed growers, staff, directors, and volunteers in the four seed cooperatives. Four key findings emerged from qualitative data collection on coop formation, business practices, decision-making structures. First, cooperatives form as alternatives not only to neoliberal agri-industry models, but to an individualistic yeoman farmer myth. Second, shared education is a critical practice that fundamentally shapes each cooperative’s business structures *and* their

ability to collaborate with other seed organizations. Third, governance in these cooperatives involves not only distributed decision-making power, but distributed accountability to each other and to the seeds they individually and collectively steward. Finally, having chosen models that require some economic autonomy, seed cooperatives must balance their financial viability within capitalist hegemony without losing their capacity for care.

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Introduction

When I first held an Orca Bean, I imagined the tiniest killer whale sitting in my palm and all that life and vigor condensed into one little bean. Two friends had grown this bean, a variety of *Phaseolus vulgaris*, the Common Bean, in a trial for the small seed company they were starting out on the Olympic Peninsula of Washington. It was, in fact, a little bean full of life, bound not for stew but for new soil and another generation of the brilliant, black and white bush beans. The Orca Bean, also called the Calypso Bean or Yin and Yang, is thought to have its roots in the Caribbean (Van & Hedrick, 1931). Today, its kin thrive in climates from the Pacific Northwest to Central America. The Orca Bean has co-evolved alongside seed savers and plant breeders and now is found in gardens and seed catalogs across what we call North America.

Gazing at the Orca Bean with a kitchen-full of vegetable enthusiasts was not my first time recognizing the depth of knowledge and life-giving properties of seeds. It was, however, the first time I recognized my potential role in stewarding seeds and how absent such an essential part of our food system is in our wider society's conversations. Seed holds myriad roles in our lives and culture. Seeds are food and they are agricultural inputs. They are relatives and storytellers. Agricultural seed may be expressions of humans' generational stewardship or of modern technological prowess that manipulate their very gene expression. We use seeds as metaphor for the ideas we plant in each other's minds and the capital invested in start-up companies. Seed, as an idea, is ubiquitous in our lives, yet agricultural seeds exist in the peripheries for many of us in minority countries like the U.S. and Canada.

This peripheralization of seed is an ongoing process largely imposed by Intellectual Property (IP) laws and financialized agroindustry (Lyon et al., 2021; Torshizi & Clapp, 2021). Advancements in twentieth century plant breeding, including hybridization and later, genetic

engineering, increased the commercial potential for agricultural seed. Because these improved varieties were less reproducible by farmers, companies further externalized seed production from the farm while creating a repeat market for their business. In the 1980s, expanded IP protections for living organisms and corporate-friendly federal courts solidified and propelled a new corporate seed regime (Lyon et al., 2021; Phillips, 2008). Seeds were scooped up, often from Indigenous cropping systems in the Global South (J. R. Kloppenburg, 2004) and reintroduced as proprietary versions of themselves in a form of on-going biocolonialism¹ (Whitt, 1998).

Decreased funding for public universities and public plant breeding programs encouraged public plant breeders to seek private partnerships or IP rights for their research (Shelton & Tracy, 2017). Within this political-economic landscape, proprietary seeds gained prominence while public plant breeding atrophied across the country. These intertwined shifts bolstered a rapid acceleration of mergers and acquisitions in the seed industry in the 90's and 2000's (Howard, 2020; J. Kloppenburg, 2014). Farmers witnessed a decrease in commercially available crop varieties and faced legal restrictions to saving their own seed (J. Kloppenburg, 2014; Lammerts van Bueren et al., 2018; Phillips, 2008).

In response, small to mid-scale organic and ecologically driven farms and gardeners have pushed back against this system of seed enclosure and consolidation by creating or reinforcing their own diverse economies (Gibson-Graham, 2006) for decentralized seed knowledge and production (Lyon et al., 2021; Peschard & Randeria, 2020). These seed system stakeholders are

¹ A more common term, coined by the ETC group, for the process of seed proprietization is *biopiracy* which “refers to the appropriation of the knowledge and genetic resources of farming and indigenous communities by individuals or institutions that seek exclusive monopoly control (patents or intellectual property) over these resources and knowledge.” (*Patents & Biopiracy / ETC Group*, n.d.). Biocolonialism includes not just the material enclosure and appropriation of materials and knowledge for profit or monopoly control, but the epistemological assumptions that perpetuate those practices. I use biocolonialism rather than biopiracy to acknowledge settler-colonial underpinnings of seed enclosures.

intent on increasing access to regionally or culturally-specific seed for farmers and community members. They have built a network of organic seed research and production, commons-based and participatory models of plant trials and breeding, and relational channels of seed distribution amongst growers of different scales (Montenegro de Wit, 2019; Organic Seed Alliance, 2022; Soleri et al., 2022). Many of them seek ‘seed sovereignty’. Seed sovereignty broadly refers to farmers’, peasants’, and communities’ right and agency to not only access seeds within the public domain, but have “complete autonomy over all seed activities including breeding” (Demeulenaere, 2018, p. 213; J. Kloppenburg, 2014).

This research sought to amplify and evaluate the work and grassroots action of actors within this network by articulating the diverse economies they perform despite seeming hegemonic powers of the corporate seed regime. Specifically, it looks to seed producer cooperatives and grower collectives as democratic, post-growth models for socio-ecological seed economies. The focus of this research were the following seed grower cooperatives or organizations collectively run by seed growers: Triple Divide Organic Seed Cooperative, Snake River Seed Cooperative, BC Eco Seeds Cooperative, and Ujamaa Cooperative Farming Alliance. Two cooperatives in this study are producer-owned, one is producer and worker-owned, and one is a cooperative initiative within a non-profit organization. In delving into the discourse, decision-making, practices and challenges of seed grower cooperatives and their members, I aim to understand why the cooperatives are formed in the ways that they are and how they play a role in more resilient seed systems. Understanding the motivations, impacts, and tensions of seed cooperatives gives us a foundation to frame more effective support for the economic models which can sustain the transformative potential of agroecological movements.

Research Questions

The guiding research questions were:

- 1.) What are the motivations and structures for seed producer cooperatives in North America and
- 2). What roles do North American seed grower cooperatives play in building resilient and equitable seed economies?
- 3.) How do the structures of seed producer cooperatives change to maintain their values as they develop?

Agroecological Seed Systems

Grower cooperatives in this study participate in the “agroecological seed system,” a system in North America created by farmers, organic plant breeders, and gardeners. These agroecological seed actors have been organizing for decades to rebuild a grower-centered seed system to disrupt or exist in alterity to the dominant seed regime. To contextualize, much of the seed systems literature considers seed systems through the lens of “formal” and “informal” seed systems. The formal seed system is defined by its interactions with “formal” institutions including public universities, national germplasm banks, private corporations, and certification or verification agencies for disseminating seed (Isbell et al., 2023). The informal seed system includes peasants, Indigenous seed keepers, gardeners, and farmer seed savers who exchange their seeds through unofficial networks including seed libraries, community seed banks, local markets, or direct exchange (Lyon et al., 2021; Westengen et al., 2023). Many understand the

informal and formal seed sectors as two ends of a spectrum, one that closely parallels the spectrum from non-commodification to universal-commodification of seed (Isbell, 2023).

This is a useful albeit imperfect distinction of seed systems given myriad intersections and imperatives of so-called formal and informal seed system actors. Westengen et al. (2023) expand on a third type of seed system that falls between the two commonly addressed systems. That is the *intermediate seed system*, “referring to individuals or organized farmers that produce and sell seed not sufficiently covered by the formal seed system, often following simplified certification schemes” (Westengen et al., 2023, p. 2). This intermediate seed system terminology helps make visible the network of seed workers creating commercial seed systems that seek more-than-commodity understandings of seed and more regionalized markets. The varieties they grow and sell often center regional adaptation, culinary quality, or cultural importance. Still, the rhetorical implications of “intermediate” as a temporary step between systems feels misaligned.

Given the ongoing political coupling of biological and capitalist systems, many of these actors, including the cooperative members in this study, are actively organizing to create a range of alternatives to corporate seed systems and monoculture agriculture-- not a stepping stone. Their efforts align with agroecological principles of self-determination and transformative socio-ecological paradigms (Gliessman, 2016; Montenegro de Wit, 2020), rather than the bridging of an informal and formal seed system. With that in mind, I refer to this system of organized farmers that sell seed through more relational, specialized markets as part of the *agroecological seed system*.

Several organizations represent the agroecological seed movement of the early 2000’s, with a few in particular that supported the emergence of the cooperatives in this study. An early force for organizing this agroecological seed work was the Organic Seed Alliance (OSA). OSA

emerged in 2003 and grew into a central hub of learning and research for regional seed producers. In 2010, the Northern Organic Vegetable Improvement Collaborative (NOVIC), a collaboration between OSA, organic vegetable farmers, and public plant breeders began a series of participatory plant breeding projects and in-situ farm variety trials that lasted for 12 years. Also in 2010, Native Seed SEARCH, a southwest-based seed organization, started offering six-day intensive Seed Schools. These schools trained farmers to produce seed across the mountain west (SeedSave.org). Plant breeders formed coalitions like the policy advocacy group, Seeds and Breeds, and voluntary royalty-seed sovereignty agreements like the Open Source Seed Initiative (OSSI). These organizations and their programming helped to instill shared visions for decentralized, grower-controlled seed networks (Lyon et al. 2021). Participants and leaders in these seed hubs spun off to create regional seed companies and working groups, often specializing in organic and heirloom varieties. Some continued farming as contract growers for seed companies. It was during this boom of the early 2010's that three of the cases in this study emerged as seed companies or cooperatives.

The agroecological seed system we see today in North America mobilized in earnest at the start of the 21st century. There was a resurgence of small, regional seed companies as well as community engagement with seed libraries and seed saving (Helicke, 2015). Seed saving within the so-called informal seed system never went away, but a rapid series of agrochemical-seed company mergers created urgency for reestablishing an organized niche for regional seed production. In 1990, Jack Kloppenburg published the seminal book *First the Seed: The Political Economy of Plant Biotechnology* (2005)², mapping the rise in seed enclosures due to increased

² The first edition was published by Cambridge University Press. The second edition, which I've cited, was published in 2005 by the University of Wisconsin Press.

use of patents and IP law. Biotechnological advancements including hybridization³, but particularly, genetic engineering, were eroding farmers' autonomy in saving seed to resow on their farms or within their communities (Kloppenborg 2005). The emphasis on proprietized seed and resultant market consolidation, solidified a reductivist paradigm for agricultural development. Rather than conducting research and selection in diverse environments, most well-funded research became centralized, reliant on inputs to create uniform growing environments across bioregions. This research also prioritized high yielding, high input crops at the expense of agrobiodiversity (Lyon et al., 2021).

Farmer-centered, agroecological seed systems are being re-invigorated in North America to perform critical preservation and creation of agrobiodiversity in light of the reductivist corporate model. It is hard to define and measure agrobiodiversity in dispersed, in-situ cropping systems, yet researchers widely acknowledge farmers' seed systems' crucial role in preserving and introducing essential genetic diversity into global agroecosystems (Montenegro, 2016; Via, 2012). Farm-saved seeds are also closely linked to several ecological benefits, including enhanced soil organic matter, optimized biological interactions, and increased soil activity at the farm-level (Altieri, 2018; Vià, 2012). Consequently, policies and practices that prioritize and support farmer seed systems become instrumental tools for enhancing climate resilience. This is why this research looks to seed producer cooperatives. It aims to make visible the models and

³ Hybrids (known commonly as F1's, which is specifically a cross between two inbred, parent lines) are a human-plant technological partnership that have ushered in significant benefits for farmers as far as certain climate adaptations and production efficiency are concerned. They are developed by crossing two parent lines (i.e. two distinct varieties) with specifically selected, desirable traits. The crops typically experience heterosis, or "hybrid vigor", which increases yields while having specifically selected, desirable traits from the parent line. Seeds saved from hybrids, however, will not produce similar plants when resown. In the beginning, the rise in hybrids pointed towards consolidation simply because of economies of scale. The land, time and skill required to produce two inbred parent lines was inaccessible for most farmers. Farmers began to source their seeds off-farm, from professional plant breeders.

challenges for economic alternatives that center farmers with the hopes of bolstering these models as seeds of more agroecological futures.

Given seed production requirements, cooperative practices make sense for agroecological seed companies. Maintaining an organic or heirloom seed inventory substantial enough for a catalog is made more feasible by collaboration across many farms and stewards. Diversified seed production requires more space than a typical market vegetable operation because of required isolation distances for cross-pollinating crops that are vulnerable to genetic contamination. Seed crops are also in the ground for longer than a crop for market harvest would be, so a farmer cannot cycle through multiple crop rotations within a single season unlike farms growing for fresh markets. From the seed growers end, many benefit from a place to send their seeds where seeds can be aggregated and sold without growers needing to do their own marketing or produce enough varieties to fill a catalog or local seed rack of their own.

Much of this collaboration is facilitated through contracts between a seed grower and a seed company rather than cooperative ownership of the seed production. Contracts delineate an agreement between a seed company and a seed grower that confirm a certain amount of money will be paid for a certain amount of seed grown, processed and sent to the company. These contracts often include information about the stockseed, standard isolation distances, minimum germination rates, and required lot purity. Most companies will pay growers within a month or two of receiving the seed from a grower after testing the seed for contaminants and conducting germination tests. While somewhat ubiquitous, especially in organic seed markets, this contract system tends to place disproportionate power in the hands of the seed companies. Seed growers are placing pressure on these seed companies to adjust to remain relevant and ethically aligned with growers.

While seed companies have already been trying to create better communication systems with contracted growers (Organic Seed Alliance, 2020), this small to mid-scale organic seed industry still enjoys relatively unchecked production and payment protocols. The top four issues seed growers were concerned about in the OSA's 2016 State of Seed report were unfair contracts, inconsistent communication and production support, and stockseed supplies (OSA, 2016). Seed growers seeking better economic conditions for disseminating their seeds have begun to organize around issues of transparency, equity, and risk-sharing. Over the past two years, the Seed Workers Organizing group (SWO) formed to organize around better contracts for contract seed growers that would address these concerns. Alongside other organic and regional seed system stakeholders, they have called for contracts that provide more production information, greater risk sharing, and more equitable payment models (Klaunig et al., 2023).

Some growers have chosen to form cooperatives “at least in part, as a strategy for empowerment and financial viability in the face of a difficult contract seed growing landscape” (Klaunig et al., 2023, p. 2). A closer look at existing seed grower cooperatives sheds light on what kind of empowerment these growers want and the processes by which cooperatives can provide it. Many grower-owners of cooperatives in this study affirmed that strategy, naming their ability to set their own prices and payment structures as a key benefit of the cooperative.

As these issues around transparency, grower agency, and equitable payment are being worked out within the predominantly white seed industry, Black, Indigenous and other people of color (BIPOC) have been organizing to increase access to seed growing for BIPOC farmers and gardeners. Some of these initiatives, like Ujamaa Seeds-- one of the cases in this study-- aim to improve BIPOC farmer livelihoods by increasing their capacity for seed production and accompanying revenue. Others may seek first to expand the capacity for producing and

disseminating culturally meaningful seeds as a form of decolonial practice or anti-racist and liberatory work outside of capitalist systems (Mok, 2021; Young, 2020).⁴ White seed producers and companies are being called to action in this work as individuals and communities rightly demand a redressing of historic injustices in our agricultural system. Communities are calling for food and land system reformation and reparations that address plantation slavery, forced removal of Indigenous people from their lands and culture, and other systemic land dispossession and discriminatory lending practices for racialized farmers (Geisler, 2014; Newkirk II, 2019). While land has become the primary mobilizing point for these movements (Pennelys Droz, 2022; Tuck & Yang, 2012), many actors in the agroecological seed system are looking at seed rematriation-- the return of seeds to their original stewards⁵-- as a means of addressing historic injustices (Herrightly & Hill, 2024). Like other seed companies, the seed cooperatives in this study are navigating how to participate in liberatory and reparative seed distribution. Unlike other companies, the cooperatives have to do this work through distributed accountability and democratic decision-making, which necessitates another layer of creative economic practices.

Seed Grower Cooperatives and Agrarian Political Economy

“I want to see a lot of really small farms connected through cooperative models. I think that that's how most of the world feeds people. I think we have a weird model in North America that we think is very productive, and I think is very unproductive...I guess, that's

⁴ For more on BIPOC seed collectives that are not featured in this study, see the 2023 California Seed Growers Conference by OSA (*Collective Models of Seed Production with Second Generation Seeds*, 2023; *Cooperative Seed Hubs with Rowen White*, 2023). Kristyn Leach of Second Generation Seeds highlights the cooperative models and mutual aid systems created by Asian immigrants and Asian American farmers that shape the values of their seed company, Second Generation Seeds. Rowen White presents on the Indigenous Seed Keepers Network and their practices and programming to support the development of regional Indigenous subs and cooperatives using kin-centric and culture-centric economic models that are both novel and rooted in myriad ancestral cooperative models (OSA 2023, ISKN interview 2024).

⁵ Rematriation is also complicated by what Robert Nichols frames as *recursive dispossession* in which Indigenous relations such as land or seeds, are transformed from non-proprietary to proprietary ones through the act of colonial dispossession (Nichols, 2020).

how I see it, the seed system-- more public ownership and more small farms collaborating” (BC Eco Seeds cofounder, grower).

Seed Grower Cooperatives as Sites of Diverse Economies

While seed producer cooperatives are not a magic bean for confronting consolidation in the seed industry nor perfect representations of socially just and ecologically-beneficent seed systems, they offer a plurality of economic models that contend with the exploitative hegemony of the corporate seed regime, the shortcomings in grower agency and transparency in the agroecological seed system, and the individualism that pervades small-scale farming circles. To do so, they build distinct business and organizational practices in an effort to redefine what solvent seed economies could look like. This research engaged with seed growers, staff, directors, and volunteers in seed cooperatives and seed collectives to understand how these creative cooperative structures are decided upon, enacted, and changed over time to make impacts in and provide alternatives to the capitalist paradigms of the current agrifood system.

Seed grower cooperatives are the lens through which I explored diverse, agroecological seed economies because of cooperatives’ historical roots in political collectivism, in addition to the legal structures that enable democratic ownership. In their legal articulations, cooperatives may generate the collective capital enough to disrupt consolidated markets, but socially, they also disrupt a culture of individualism. The individualism that pervades small scale and beginning farmer movements is often encapsulated in the “myth of the yeoman farmer” (Calo, 2020). The Yeoman Farmer represents a specific agrarian imaginary that has shaped American agriculture since the onset of settler-colonialism. It is rooted in ownership of land as the means for independence, and independence as the ideal - in part, as a moral insulation from urban commercial and political corruption (Calo, 2020, p. 14). Aligned with this mythos, public and

privately funded beginning farmer trainings, curriculum emphasizes business management and technical horticultural training for new farmers (Calo, 2020), as though entrepreneurial skill alone will allow them to overcome systemic barriers of rural out migration and financialized agri-industry. This framing of training perpetuates competition amongst small, individual farmers, rather than a critical examination of the neoliberal forces that cause challenges for small and beginning farmers. The seed cooperatives in this study, instead aim to collaborative learn and enhance seed production skills and exchange through collaborative economic models.

In theorizing the politics and performance of cooperative structures, this research is enhanced by the expansive body of Diverse Economies literature. Diverse Economies research emerged from the work of J.K. Gibson-Graham who argued for a post-capitalist approach to political economies that recognizes alternative forms of economies existing in tandem with, inside, and in opposition to capitalism (Gibson-Graham, 2006). By articulating diverse economies, we recenter possibilities that are marginalized or obscured by traditional Marxist capital-centrism of critical geographers. In making these possibilities more tangible, Gibson-Graham argue that they become more capable of transformative politics and activism (*Making Other Worlds Possible*, 2015). In the case of seed grower cooperatives, this research found that most members are primarily involved in cooperative economies because of the model's political and social potential.

As a Grounded Theory study, the Diverse Economies framework for this thesis came from interviews with cooperative members who often articulated an explicit desire to distance themselves from capitalism. They expressed similar sentiments around choosing to engage in the cooperative and producer-led models because they are “*not good at capitalism*” or “*sick of the*

whole hardcore capitalist model". Cooperative, producer-led economic models are a way for them to exist within a capitalist system, while having space to “*steer away from that [capitalist model]*” or “*not engage more than I have to.*” While many referred broadly to capitalism, others articulated specific characteristics of neoliberalism or racial capitalism in their discourse. These specific concerns help to frame the alternative models they aim to create, and in turn, the opportunities for aligned organizations to support cooperative seed economies. Alternatives to competition and individualism within “good food” systems can provide examples and serve as practice grounds for alternative agricultural imaginaries in North American policies and practices (Massicotte, 2014; *Making Other Worlds Possible*, 2015). In turn, these imaginaries can spur new policies and theories of change for resilient agrifood systems.

Opportunities and Limitations of a Cooperative Framework

Legal requirements for incorporating as a cooperative vary state by state and nation by nation, and there are innumerable cooperative economic models that fall outside legal qualifications entirely. That is, in part, why this research is more engaged in the informal and relational structures of cooperatives. Patterns in the creation and questions of collective decision-making and shared production stewardship have a broader reach for growers interested in cooperative models across a range of scales and geographies. The discourse around extralegal structures also alludes to the politics of contemporary seed activism (Peschard & Randeria, 2020), and can be analyzed for ways to improve rhetoric and framing around programming, policy, and development support in seed systems and cooperative seed businesses.

That said, certain sections of this thesis reference specific legal structures. Those include bylaws, which establish how the cooperative will conduct business within the State statutes and

their articles of incorporation, and patronage dividends, the ways cooperatives distribute profit based on predetermined metrics of coop participation (Armstrong et al., 2015). There are also commonly understood definitions of cooperatives that provide context for cooperative cases in this study. One of these definitions is The International Cooperative Alliance (ICA) which states that a cooperative is ‘an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise’ (ICA, 2024). While not required legally, many cooperatives adhere to the seven internationally recognized principles put forth by the ICA: 1. Voluntary and Open Membership, 2. Democratic Member Control, 3. Member Economic Participation, 4. Autonomy and Independence, 5. Education, Training, and Information, 6. Cooperation among Cooperatives, 7. Concern for Community.

In the U.S. legal context, cooperatives are a specific business entity parallel to a C corporation, a LLC, a B corporation, or a nonprofit. They are governed by direct democracy (one member one vote) and profit is distributed to members based on their participation in the cooperative. This is distinct from a C corporation, where voting and profits are determined by one’s ownership percentage (i.e. capital investment). There are also US Department of Agriculture’s (USDA) established Agricultural Cooperative (AC) principles: 1. The User-Owner Principle: Those who own and finance the cooperative are those who use the cooperative; 2. The User-Control Principle: Those who control the cooperative are those who use the cooperative, and 3. The User-Benefits Principle: The cooperative’s sole purpose is to provide and distribute benefits to its users on the basis of their use (Reynolds, 2014).

The USDA principles for cooperatives are narrower and less politically or socially oriented than the ICA. When the USDA adopted these principles in 1987, the Rural Business

Cooperative Service of the USDA expressed concern about weakening ethics in farmer cooperatives (Ajates, 2020; Reynolds, 2014). USDA economist Bruce J. Reynolds responded saying “The principles in USDA 3 are universal and timeless in the sense of not being influenced by periodic changes in socio-economic conditions or in cultural norms. By contrast, those who developed the ICA principles embrace social and historical experience as a source for defining the distinctive purposes of cooperatives” (Reynolds, 2014). When the USDA removed values from their definition of agricultural cooperatives, it effectively institutionalized the depoliticization of agricultural cooperatives.

This research aims to understand how mission-oriented cooperative seed enterprises emerge and persist precisely because of socio-economic conditions and historical experience. The European cooperative movement that informed North American AC’s sought a model for community democratic governance and equality with the potential to legitimize and sustain class struggles, tackle power imbalances and improve workers’ conditions (Ajates, 2020; Kaswan, 2014). Despite these roots, they are faced with pressure to consolidate and de-politicize around the world (Ajates, 2020; Kaswan, 2014).

I say this not to disregard the legal tool that is cooperative business incorporation, but to emphasize that cooperative businesses require much more than their legal structure to operate in alterity to the neoliberal agrifood industry. For this reason, this work is less interested in the legal structures and business operations of the cooperatives, and more about the way people are thinking about and making decisions around those structures and operations. I include entities that adopt cooperative structures and principles supported by, but not exclusively defined by legal codes for cooperatives. Specifically, I include one non-profit that uses cooperative

practices, but is not legally incorporated as such. I elaborate on the inclusion criteria in the subsequent Methods section.

Methods

Recruitment and Inclusion Criteria

This study included twenty-five interviews with growers, employees, and organizers within four grower-led, cooperative seed businesses. I included only diversified vegetable and flower seed businesses rather than grain or soybean seeds, which, even when Organic, tend to operate within different market structures. To connect with participants, I did an online search for “producer-owned seed cooperatives in North America” and “grower-owned seed cooperatives in North America”. I did not include seed cooperatives that are only employee or worker-owned because I was interested specifically in how growers can collaborate through collective decision making and shared stewardship of seed agrobiodiversity across their farms. Given the sparse results of the Google search (for example, I had heard about a Montana growers cooperative, but Triple Divide Seeds did not come up during the Google Search), I used Organic Seed Alliance’s seed producer directory ([Organic Seed Producers & Intern Host Farm Directory 2024](#)). In the directory, I searched the terms “coop”, “cooperative”, and “collective” under Search within Profiles. I used the cooperative businesses’ websites to reach out to growers and board members by email. I then used a snowball method to reach out to other members of each cooperative. I did not receive responses from two of the cooperatives or collectives found through these search criteria.

I included for-profit cooperatives and non-profit businesses operating with cooperative practices to center democratic decision-making, rather than legal codes, and to expand this

research's representation of underrepresented seed growers in North America, including BIPOC farmers and seed stewards. In recognizing the overwhelmingly white and land-owning growers involved as members of legally incorporated seed grower cooperatives (reflective of commercial agroecological seed systems as a whole), expanding the criteria allowed me to work with representatives from Ujamaa Cooperative Farming Alliance (Ujamaa). Ujamaa is a project within the non-profit STEAM Onward to increase BIPOC farmers' and communities' access to culturally meaningful seed. As part of that work, they created Ujamaa Seeds, an online seed catalog that sells culturally-meaningful seeds grown by their network of growers, as well as resale seeds. Ujamaa was created in 2020 and launched their first catalog for Ujamaa Seeds in January 2022. I interviewed four of their co-directors about Ujamaa's development, governance, and goals.

I also interviewed the coordinator of the Indigenous Seed Keepers Network (ISKN). ISKN is an initiative of the Native American Food Sovereignty Alliance (NAFSA), a non-profit. They provide support for regional Tribal and Intertribal seed hubs. ISKN's structure falls outside of the scope of cooperative cases for this study, because they do not have a central shared seed catalog. While ISKN was not included as a case for this study, our conversation and additional media from ISKN offers insight as to what kinds of cooperative development support ISKN offers for regional Indigenous seed cooperatives. I did not receive responses from individuals I reached out to who are involved in a California-based grower collective focused on Asian and Pacific Islander seeds. Given time constraints and non-responses, this work remains limited in representation of the breadth of cooperative seed work being led by BIPOC communities.

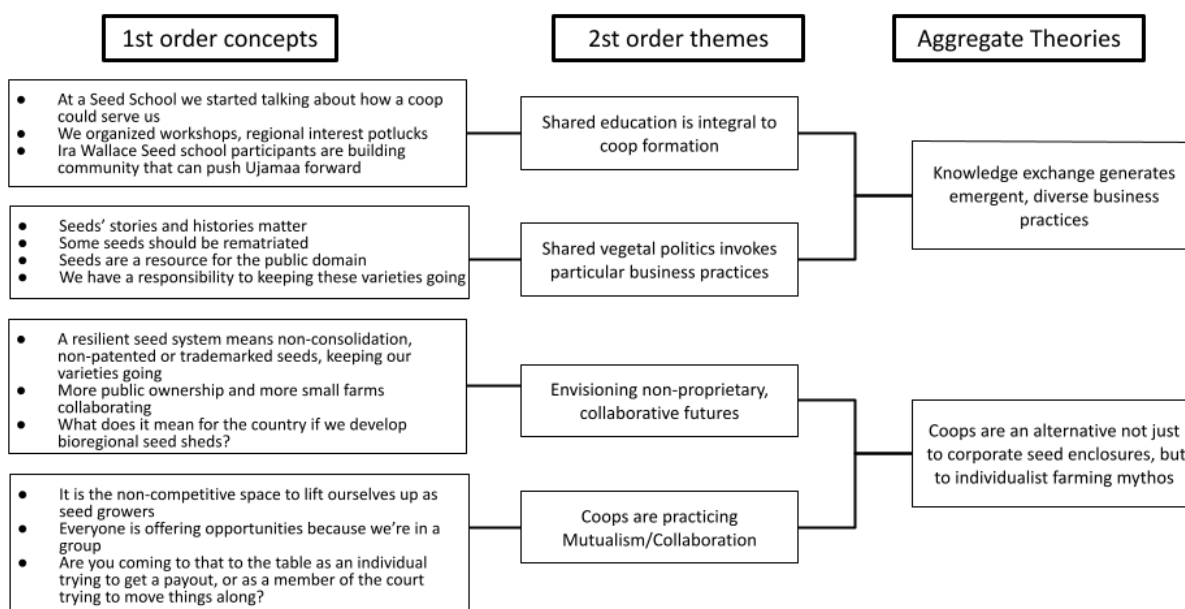
Data Collection and Analysis

In accordance with Grounded Theory, interview scripts changed throughout the data collection process. As patterns emerged or certain questions hit data saturation, interview scripts were iteratively adjusted to avoid redundancies and follow the emergent themes. I gathered additional data produced by seed collectives across different media such as podcasts, youtube conference recordings, the organizations' websites, social media, and news articles related to their organization.

To analyze the interview data, I transcribed interviews using the software Otter.ai. I used Atlas.ti software to code interview transcripts and interview notes. I employed Grounded Theory methods to analyze the values and processes behind decision-making in the cooperatives and to participants' perceptions of cooperatives' role in resilient seed systems. As Gioia et al. emphasize, inductive analysis - the logic that Grounded Theory uses- is critical to developing theory and understanding embedded concepts and processes of organizational work because the work of organizing and organizations is inherently socially constructed and contextual. Grounded Theory analysis requires iterative coding and use of memos throughout data collection and field work to find emergent themes and theory (Bryant & Charmaz, 2022; Gioia et al., 2013). I recorded memos throughout data collection. These memos included notes on emergent themes, such as organizational knowledge transfer or frameworks such as "diverse economies" and "post-growth scaling" that seemed applicable. These memos were written after interviews and utilized descriptive field notes in addition to interview transcripts and literature. I used these memos to help guide my coding analysis and to adapt my interview script after each interview. After data collection, I used Gioia et al.'s (2013) two step approach to coding to ensure rigor in the analysis process of emergent ideas. Gioia et al. first apply codes to transcripts using the

language of participants in order to center participants' as agents of knowledge. "In addition to the basic assumption that the organizational world is socially constructed, we employ another crucial and actionable assumption as well: that the people constructing their organizational realities are "knowledgeable agents." (Gioia et al., 2013, p. 17). In other words, the first step of coding centered the rhetoric and explanations that participants from seed cooperatives offered regarding realities of the seed system, their cooperative objectives and their actions and intentions.

Image 1: Example of a data structure for Grounded Theory using Gioia Methodology



In the Gioia Methodology, participant-centered codes are next organized into patterns and themes. Only after finding themes from the first step coding, do they integrate codes from existing theory and constructs from literature to inform a grounded, overarching theory (Gioia et al., 2013). I also used discursive analysis to find patterns in the language, discourse, and narratives surrounding certain interview topics. Discursive analysis recognizes that language

shapes our perceptions, beliefs, and actions, thereby illuminating certain ideologies, power dynamics, and values. A discursive analysis in seed systems, for example, examines language as a proxy for how groups understand and engage with seed system issues like transparency, commodification and IP laws, and agricultural biodiversity.

Cooperative Seed Cases in this Study

Those chosen as case studies for this research are legally bound to and/or operationally strive towards democratic governance and equitable distribution of benefits and resources from the organization. All four cases have a focus on seed growers' agency, building seed grower capacity, and stewarding regionally adapted or culturally important seeds. In the table below, each case is listed by name alongside their year of incorporation or founding, their membership, an approximate annual revenue for 2023 and the number of interviews I conducted within the entity.

Membership for BC Eco Seeds, Snake River Seeds, and Triple Divide Organic Seeds include the legal co-owners of the cooperative. The number of growers they sell seeds from is included in parenthesis. The degree of organizational participation amongst the non-member growers varies across cooperatives. BC Eco seeds exclusively sells seeds from their owner-members, but not all members will contribute seed each year. Triple Divide not only includes non-members seed in their catalog but invites them into cooperative governance. Snake River Seeds includes employee-owners (4), grower-owners (11), non-owner employees (2), and non-owner growers (30-40). Only owners can serve on the Board of Directors and vote, but non-owner employees have a say in business operations and non-owner growers are invited to annual grower/member meetings. As a non-profit, Ujamaa Cooperative Farming Alliance does not have

owners, but in 2024, they had an administrative team of 13 co-directors and 32 farms that directly provided seeds for the 2024 catalog or are participating in seed trainings

(Ujamaafarms.com/growers-1 acc. 4/11/24). They are governed by semi-autonomous working groups, and a representative of each group comprises the admin board.

Table 1: Seed Grower Cooperatives in this study. See [Appendix A](#) for more detailed narratives of each cooperatives formation and operations.

<i>Name of Entity</i>	<i>Date of Incorporation</i>	<i>Legal Structure</i>	<i>Membership (growers)</i>	<i>Annual Revenue</i>	<i>Interviews</i>
BC Eco Seeds Cooperative	2014	Cooperative Corporation (British Columbia)	21 (15-20)	110k	3
Snake River Seed Cooperative	2022 (2014 LLC)	Cooperative Corporation (Idaho)	15 (40)	300-350k	8
Triple Divide Organic Seed Cooperative	2014	Cooperative Corporation (Montana)	10 (16)	50k	8
Ujamaa Seeds (Ujamaa Farmers Cooperative)	2020	501(c)3 Non-Profit (Maryland)	13 (32)	50k	4

BC Eco Seeds Coop (BC Eco Seeds)

BC Eco Seeds was formed to provide bulk seed for farmers across British Columbia. The Canadian vegetable seed market is dominated by imports, and these growers saw a chance to build more seed security through locally grown bulk seed. The coop is still figuring out the right scale and systems to enter this market, and for now rely more heavily on gardeners and packet sales. Most of the growers are fresh market farms/farmers who are growing some varieties out for seed.

Snake River Seed Cooperative

The largest business among the cooperatives in this study is Snake River Seed Cooperative (Snake River). Their seed office is based in Boise, ID with growers spanning the Great Basin Ecoregion-- Idaho, Eastern Washington, Eastern Oregon, Northern Utah, and Western Montana. The region had a lack of climate-adapted seeds and they wanted to rebuild capacity for regional farmers to fill that void. Growers include fresh market farmers, dedicated seed farmers growing for the cooperative in addition to other retail outlets, and some backyard gardeners. In January 2022, after nearly a decade as an LLC, Snake River transitioned to an employee and producer-owned cooperative.

Triple Divide Seed Cooperative

Triple Divide Organic Seed Coop (Triple Divide) is based in Western Montana, largely within Mission Valley. About half farm full time and half have significant full or part-time work outside of farming. All the growers, whether they have bought into coop ownership or not, are invited to the annual member meeting and group decision making processes. This loose and open structure has sustained itself through trust and relationships between the growers since the coop's conception.

Ujamaa Seeds / Ujamaa Cooperative Farming Alliance (UCFA)

Formed in 2020 to increase the number and capacity of BIPOC seed growers, Ujamaa Cooperative Farming Alliance is the most nascent of these cooperative cases. They launched Ujamaa Seeds as a catalog to increase access to culturally meaningful seeds and create a market outlet for BIPOC seed growers. As of February 2024, the group has put out their fourth seed catalog and organized a decentralized network of seed hubs to distribute their seeds and build seed growing capacity. Unlike the other three cases, Ujamaa also sell culturally meaningful seeds from wholesale seed companies whose growers are not connected to UCFA.

Findings

In prefiguring models for more collaborative and diverse seed economies, BC Eco Seeds, Triple Divide, Snake River, and Ujamaa are creating emergent business practices informed by their shared vegetal values and politics. Four key findings emerged from qualitative data collection around coop formation, business practices, decision-making structures, and the discourse members engaged in around those themes. First, cooperatives form as alternatives not only to neoliberal agri-industry models, but to an individualistic yeoman farmer mythos. They offer alternatives not just in the products they offer but in the practices they use. Second, shared education is a creative, generative practice that fundamentally shapes each cooperative's business practices *and* their ability to collaborate with other seed organizations. Third, governance in these cooperatives involves not only distributed decision-making power, but distributed accountability to each other and to the seeds they individually and collectively steward. Finally, having chosen models that require some economic autonomy, seed cooperatives must balance their financial viability within capitalist hegemony without losing their capacity for care.

Shared Education as a Formative and Creative Process

Shared education within these cooperatives was essential to their formation and continues to act as a generative force for creative business structures. The cooperatives in this study all had an initial phase of community-building to develop the trust and investment required of a cooperative. This phase took multiple years and community partners, and it often revolved around shared educational programs and peer-to-peer learning at seed conferences. For example,

Triple Divide and Snake River both had members mobilize to form a cooperative after they attended a week-long Seed School intensive together.

After formation, the cooperatives have continued to take education seriously as a cooperative principle. Among other educational partnerships, Ujamaa has created their own seed school for new growers as one of its main initiatives. BC Eco Seeds has no formal educational programming, but they do have close ties to the non-profit Farm Folk City Folk (FFCF) and the University of British Columbia Farm (UBC Farm) Seed Hub. UBC Farm is, in fact, one of the producer-owners of BC Eco Seeds. UBC Farm and FFCF support collaborative research and education for seed security and resilient seed systems, often in collaboration with one another (Lyon et al. 2021; FFCF and UBC farm websites, 2024)⁶.

Cooperatives in this study created their own internal education, but the four also share roots in similar convening spaces, like Organic Seed Alliance's bi-annual Organic Seed Conference and the B.C. Organic Seed Conference. These spaces of knowledge-exchange united organic farmers and seed growers of various experience levels around shared seed system vision. In turn, cooperatives gained traction as like-minded people, wanting more collaborative seed production opportunities, developed relationships at conferences. As the Snake River founder, Casey O'Leary said, "*other organizations set up the spaces for those of us who already wanted to be doing this, and we met through those spaces that were provided to us.*"

One of the reasons conferences, in-person seed workshops, and internal systems for knowledge exchange are such critical organizing infrastructure for the cooperatives is that they create a space that invokes shared seed values and "vegetal politics" rather than just a shared desire to sell seeds. Vegetal politics are the "human politics that impact plant populations as well

⁶ <https://ubcfarm.ubc.ca/seed-catalogue/> and <https://farmfolkcityfolk.ca/bc-seed-security-program/research-and-education-seed-farm/>

as the nonhuman politics that plants may conduct on their own” (Keeve, 2020, 56). The educational opportunities provided by conferences and workshops are not based on technical or entrepreneurial skills alone, but in knowledge exchange and an articulation of the values and politics of an agroecological seed system. In recognizing seeds as more-than-commodities, but as entities that hold stories, interspecies relationships, and viable, sovereign futures for humans and non-humans alike, seed cooperative members are called-- by seeds themselves-- to create distinct models for production and distribution that acknowledge seeds’ relational attributes. The coops within the agroecological seed system also recognize, unlike many multinational agri-input corporations, what we cannot control in the life of seeds, such as cross pollination. In this way, a seed organizes people around it as an assertion of vegetal politics.

One dimension of vegetal politics that emerges from these organic seed conferences is maintaining or revitalizing a seed commons. Seed growers in the agroecological seed system recognize not only the history of seeds as participants in a global common, but the importance in maintaining common access to seeds for agroecological diversity. Members of the seed cooperatives recognize not only the importance of a seed commons for agrobiodiversity, but also the importance of a seed commons for cultural healing and building relational economies. In turn, they enact business practices which assert that seeds are dynamic actors in a public commons.

This commonly held vegetal politic is made clear by the fact that three of four of the cooperatives in this study⁷ are partners of the Open Source Seed Initiative (OSSI) (*Seed Company & Nursery Partners-OSSI*, 2024). OSSI, is a coalition that aims to maintain seed sovereignty through protecting open access to germplasm and seed globally. They created a

⁷ Ujamaa likely just because they’re still nascent.

voluntary Pledge for breeders and growers “not to restrict others’ use of OSSI-Pledged seeds or their derivatives by patents or other means, and to include this Pledge with any transfer of these seeds or their derivatives.” (OSSI, 2024). Partner seed companies, including Triple Divide, Snake River, and BC Eco Seeds sell OSSI-Pledged varieties, acknowledge the OSSI breeders in their variety descriptions, label OSSI-Pledged varieties with the OSSI logo, and include the Pledge and information about OSSI in their catalogs and on their websites.

Taking these open-source vegetal politics a step further, many of the growers in these cooperatives believe in the long-term work of dehybridization as a way of recommoning seed, increasing diversity, and embracing plant agency. A discussion on dehybridization at one coop member’s first OSA conference is what in large part inspired his foray into seed production:

“I walked in, and the first thing I went to, they were talking about dehybridization. And it was really cool, because like, there's this thing you're told ‘Oh, you're farming vegetables, don't-- you can't save seeds from hybrids.’ And that's just because you don't want to, you know, in that practice. But it was just something that kind of blew my mind...suddenly it's like, oh, wait a second. This thing we told ourselves not to do is really this crazy, chaotic, awesome, diverse source of stuff. And it's really useful” (Snake River board member, grower)

The idea of dehybridizing inspires and engages many seed growers. In their catalog, Triple Divide includes several dehybridized varieties that their growers have spent years stabilizing. Along with other heirloom varieties, these stabilized hybrids can only be found in the Triple Divide’s catalog. One grower expressed that dehybridizing aligns with the cooperatives’ values of grower-agency because it re-establishes a variety as a stable, open-pollinated variety. *“Open pollinated, you're not dependent on someone else, and selling hybrids would be recreating that dependency model”* (Triple Divide co-founder, grower). Hybrids create dependency because they require significantly more resources to produce. F1 hybrids are what

many plant breeders and farmers think of when discussing or selecting hybrid varieties. These varieties require two inbred parent lines to cross, which can take many generations of skilled production and isolation space or infrastructure to reach the genetic purity required. Capital and labor requirements for F1 hybrids create significant restrictions for farmers seed saving.

Varietal hybrids, however, meaning crosses of two open-pollinated varieties, still require additional land space and labor for systematized cross-pollination, but could be more suitable to the cooperative practices and scale of the seed cooperatives. In fact, cooperatives could position themselves to create radically transparent and bioregional varietal hybrid production systems. One BC Eco Seeds grower expanded on the issue of hybrid dependency, acknowledging that the issue is not necessarily about hybrid breeding methods, but the patents, licensing, and trade secrets surrounding most hybrid varieties:

I've always been a strong proponent of, like, public ownership of this resource...I'm not opposed to, for example, hybrid seeds. I could imagine this coop getting into that if we have two members and we each grow the parent, and we make these parents available to purchase, as well...Hybrid seeds in a public domain I think can be valuable.” (BC Eco Seeds co-founder, grower)

What is important to this grower, and many others, is keeping these technologies in the public domain. As Helen Anne Curry points out in her 2022 historiography of hybrid seeds, aversion to hybrids is often not derived from a rejection of breeding methods but rejection of the political and economic practices the seed is associated with (Curry, 2022). In the case of these cooperatives, their shared understanding of hybrid economics has solidified business models that refuses trade secrets or obstruction of seed access for communities. Growers are more interested in providing the service of quality seed stewardship than developing a scarcity-framed product for a market. While not all growers share the same prerogatives around hybridization, shared education offers a way for these groups to direct their efforts towards common goals like a public

seed commons. In establishing shared vegetal politics, seed schools, conferences, and internal knowledge exchange establish epistemic foundations for cooperatives' emergent business practices.

Inter-organizational “Cross-Pollination” Shapes Collaborative Seed Economies

It is in the spirit of the seed commons that the seed grower cooperatives in this research all seek collaboration and cross-pollination of ideas rather than competition with other seed enterprises. During their formation, the cooperatives sought financial and technical support from cooperative economic development groups, community members,⁸ but also other seed companies. For example, in one of their earliest organizing meetings, Ujamaa presented a request for “Reparations and Reciprocity” from seed companies and established seed actors.

Agroecological seed companies, including Snake River Seed Cooperative, send initial and ongoing donations to Ujamaa to support their launch. Ujamaa has also built close ties with the worker-owned seed company, Southern Exposure Seed Exchange and Experimental Farm Network along with numerous long-time seed growers and breeders in the agroecological seed system.

It is not just reparations that prompt Ujamaa's inter-organizational solidarity nor is Ujamaa the only grower cooperative engaging in seed network mutualism. The cooperatives share an understanding of seed commons and commitment to expanding regionally and culturally embedded seed production capacity wherein the success of one cooperative is entwined with the success of another. Most recently, Triple Divide and Snake River began a complicated

⁸ [Appendix B](#) includes the cooperatives' sources for financial and technical support.

conversation about expanding Snake River's market into Western Montana. In seeking to expand their market reach, Snake River wants to start selling their seed through retailers in Western Montana where the much smaller Triple Divide has had no local competition since the closing of two major seed distributors in the '90s. Knowing that Snake River's business in the area could undercut the sales of Triple Divide seeds, the Snake River Board members organized a call with Triple Divide to discuss how they could collectively enhance the local seed markets in Western Montana, rather than undermine Triple Divide. This conversation is ongoing. Members of each cooperative felt excited to be in conversation with one another, though some still harbored concerns over whether or not they could actually co-exist within the same geographical market place. While the phone call was inconclusive, it represents a commitment to collaborative economic models that can transcend the individualistic, competitive foundations of capitalist economies.

Cooperative organizers want to build cooperative networks

Cooperative members see prospective seed co-ops as contributors to resilient seed economies rather than competition. As such, they're eager to expand their collaboration to new groups to the end of establishing a larger network of cooperatives. The steering committees and employees in these cooperatives struggled to find reliable technical, business or governmental support for specific elements of cooperative development. In the process of data collection for this study, I found that participants were eager to share these experiences because they want to make it easier for new cooperatives to form, and they wanted to learn from the other cooperatives in the study.

Snake River, for example, worked with an attorney familiar with social and sustainable economic models, but cooperative accountants and accountants familiar with seed businesses

were hard to find. They found an accountant willing to learn, but their lack of experience led to unforeseen issues. The business decided to use accrual rather than cash tax accounting, so when the founder donated their personal seed inventory to the cooperative, it became an unforeseen tax liability:

“The tax guy was like “nope, you have to pay us \$20,000 for that.” And we’re like, okay, well, shit balls. It set us back every year now...then I’m thinking, did our accountant that we had at the time--we have a new accountant,-- like, they weren’t really well versed in coops, were they really telling us accurate information? I don’t know. Who knows?”^[SEP](Snake River Seeds grower and Board member)

In another instance, the Snake River bookkeeper tried to work with the Idaho Department of Labor to set up employee benefits. The Department of Labor struggled through understanding the cooperative structures to the point where they began to take detailed notes on Snake River’s business model so they could help others working within cooperative labor systems.

“I would contact the Department of Labor and be trying to get our unemployment setup. And they were like, ‘You’re a part owner, but that person is also a part owner? And that person is a part owner?’ They were like, I don’t get it... we had presented them with an obstacle that they had never encountered.”(Snake River bookkeeper)

While these members shared the challenges of finding accurate and reliable support for this alternative economic model, most also recognized that the novelty of cooperative economies is contextual. As one of the Snake River growers who served on the steering committee put it, “coops aren’t new but modern coops in a capitalistic realm is, sort of.” They are learning as they go and trying to rely on examples from the past, but in an entirely new terrain. An Ujamaa co-director involved in early development and governance planning relayed a similar feeling of

trying to create something that feels “radical in a lot of ways,” but also “harkening back” to community-based economies.

Outside of these interviews, many of the cooperatives have already contributed to knowledge sharing in support of future cooperative seed businesses. There are far more resources available to seed growers interested in starting small businesses and cooperatively-owned or governed models since the founding of Triple Divide, BC Eco Seeds, and Snake River. The Organic Seed Alliance has over a dozen webinars and several written reports and media posts about seed business development and cooperative or collective models. Triple Divide individuals⁹, and Snake River and Ujamaa members representing their organizations have all been featured in these seed economies resources from OSA (eOrganic, 2018; Fetherolf, 2020; *G3 / Running a Small Online Seed Company*, 2022). The depth of knowledge cross-fertilization and resource sharing among not only individuals, but companies within the alternative and organic seed economy represent a clear divergence from most of the models that dominate our understanding of economics today. The seed cooperatives in this study both benefit from and push this reality forward.

Seeds as Co-agents of Governance

Just as cooperatives offer models for ethical, relational production with other growers, the grower-members have an ethical, relational responsibilities to seeds. Those responsibilities inform their business practices and decision-making structures just as human-to-human

⁹ Triple Divide members shared information about their individual farm and seed operations rather than Triple Divide’s cooperative seed business structure.

sociopolitical relationships do. The production realities of a variety, including how readily it cross-pollinates and how long the crop takes to go to seed, are a component of seeds' vegetal politics, in that these needs influence which varieties are included in the cooperatives' catalogs. Personal ties to a seed, be they ancestral or otherwise significant to the grower, also determine the seeds that are stewarded within cooperative businesses. Increasingly, the provenance of the seeds, particularly seeds connected to specific Indigenous families and Tribes, influence the varieties that seed companies will include and *how* they will be included. For example, will varietal descriptions acknowledge specific Tribes or families and will those Tribes, communities and families receive a percentage of the sales?

Since cooperatives are structured for economic autonomy, they must balance seed stewardship ideals with financial viability in a challenging seed landscape (eOrganic, 2018). Cooperative members identified three common challenges to the regional seed markets: first, farmers' (including Organic-certified) often prefer hybrids and treated seed promoted by industry and reified by an abandonment of certain regions in organic plant breeding or production (Organic Seed Alliance, 2022). Seed cooperatives need to figure out whether or not to target farmers-as-customers and what varieties and scale make that feasible. Second, other seed companies selling packets to gardeners often purchase wholesale seeds overseas where labor is less expensive. Regional seed cooperatives must effectively market themselves to ensure they provide added value for gardeners. Finally, farmers and gardeners both prefer consistency in varieties from year to year and the ability to order multiple crops from one catalog. The cooperatives therefore need to plan for multi-year seed inventories and on-going grower commitment. To honor their accountability to the seeds they steward, as well as their own

livelihoods, and the communities they serve, growers have developed systems for cooperative inventory management.

Plant properties (agency) shapes catalog

Inventory management is the crux of cooperative seed production for cases in this study as they navigate tensions across impact, seed stewardship, economic values, and effective scales of operation. In grower cooperatives focused on grower agency or seed sovereignty who decides what varieties enter the catalog and why? Who “owns” the seeds in the coop’s inventory? These questions can be laden with problems of subjecthood, agency, and ownership and there are rarely right answers. The discourse around these questions helps us to understand the goals for cooperatives and their members, and the ways they balance their values of seed stewardship and democratic decision-making with economic viability.

In many ACs globally, profit-centric growth has diminished grower agency when it comes to seed selection (Ajates, 2020). In the European ACs specializing in seed, for example, farmers have experienced cooperative administrators increasingly directing farmers what to grow, sometimes requiring new varieties that are not adapted to local climate and pests or which are less flavorful (Ajates, 2020). This profit-oriented catalog development aligns closely with the multinational seed companies who rapidly streamlined the varieties they acquired through mergers and acquisitions of hundreds of North American seed companies over the past three decades (Philips 2008, Howard 2020). While the cooperatives in this study are nowhere near the scale of these multinational corporations nor the European seed cooperatives, they still recognize and grapple with tensions around stewardship and efficacy.

While cooperatives have to navigate which varieties may be too cumbersome to economically produce and move through their system, one of the critical roles they can play in the seed system is supporting high quality, in-situ stewardship of agricultural biodiversity¹⁰. Triple Divide, for instance, has coordinated grow outs with public plant breeders through NOVIC so their growers could be early adopters of open-pollinated sweet corn varieties developed by the University of Wisconsin-Madison and OSA. Sweet corn is a key vegetable player in North American agriculture, but for many years, there were hardly any commercially available varieties that were not hybrids (Navazio, 2012). This is because of the biological properties of corn. First, the number of seeds produced per plant and the ability for breeders to (mostly) control their cross-pollination, allowed companies to easily develop hybrid corn varieties that farmers could still profit from even as those farmers became dependent on external seed year after year (Curry, 2022, p. 4). Second, corn is highly vulnerable to inbreeding depression, that is, a decline in yield or other desirable traits over generations as a result of pollinating exclusively with plants of a similar genetic make up. Because of this hybrid dominance, most farm-based, organic and heirloom seed companies have just one, if any, varieties of sweet corn in their catalogs. Triple Divide, the smallest of the seed grower cooperatives, has three. Their commitment to shared education early on, set them up to be stewards of these challenging crops, and others. Again, the influence of vegetal politics influences such business decisions. For some coops, the difficulties around quality sweet corn production limits their ability to engage in plant partnerships with these varieties, for others, like

¹⁰ I use agricultural biodiversity instead of agrobiodiversity in line with political ecologists such as Garrett Graddy-Lovelace who writes, “I resist the reduction of all agricultural diversity to mere genetic agrobiodiversity—an oversimplification that molecularizes the rich social, cultural ecological context entailed in agricultural diversity, thereby erasing the knowledges, skilled labor, and relationships that (re)generate such resources.” (Graddy, 2014).

Triple Divide, it is this very challenge that inspires them to deepen their relationships to sweet corn varieties and shared horticultural knowledge more generally.

While sweet corn may be less of an inventory priority for other coops, all four coop cases tend to create space to be creative and collaborative in the seeds they offer, including varieties still in development. Unlike many formal seed companies, even organic or smaller scale, they will sell varieties that are unique to their coop and not yet fully stabilized as open-pollinated varieties. The Metchosin Pink Tomato grown by a BC Eco Seeds member, for instance, is described as a new farm favorite with the disclaimer, “this is a new variety we are working to stabilize, you may get some off-types in this package – save some seeds and start your own new tomato type!” (*Metchosin Pink Tomato*, 2024). In this example, the coop members growing Metchosin Pink Tomatoes not only engage in dehybridization with a long term end goal of creating an accessible, stable variety for local growers, but they invite others to join in building biodiversity as a decentralized community of growers. These distinct varieties help to carve out a niche for these grower cooperatives, but they must also be balanced with varieties familiar to customers.

Seed Provenance Shapes Catalogs

To be transparent and just in recognizing the original stewards or breeders of seed, the cooperatives are navigating how to share narratives around specific seeds or whether or not to sell certain seeds at all. Many crops that are now prolific in North American seed catalogs have roots in the appropriation of Indigenous seeds and seeds exchanged within systems of slavery (Keeve, 2020; Lyon et al., 2021). In creating economic models in alterity to corporate seed enclosures and biocolonialism, the cooperative have to engage with the inequities of open-ness

of Open Source Seed¹¹ and the problems of recursive dispossession that surround the healing work of seed rematriation.

Ujamaa is led by Black and Indigenous farmers and organizers who are negotiating internally around how to source, share, and sell seeds of their ancestors. Appropriation of seed is less of an issue, but they are navigating how to include these seeds in a commercial catalog, while working to resituate them “as more than a commodity, but also as vessels of cultural heritage” (Ujamaafarms.com, 2024). Bonnetta Adeb, co-founder of Ujamaa explained to me how they partner with Seed Savers Exchange, the heirloom seed company and seed bank, to create mechanisms for rematriating seed to families, including non-Indigenous families who have been forcibly or culturally removed from their seed ancestry. They are also prioritizing storytelling around these seeds and their keepers. Ujamaa has a working group dedicated to History, Culture and Research of seed keeping, ancestral seeds, and independent plant breeding. The Heirloom Gardens Oral History project, a partnership between Ujamaa, Princeton University, and Spelman College collects oral histories of people who have worked to preserve Black and Indigenous seed and foodways through the Southeastern United States and Appalachia. Between their work with Seed Savers Exchange and the oral histories project Ujamaa is culturally and materially reassociating seeds with their original or early stewards.

Triple Divide, BC Eco Seeds, and Snake River are made up of a majority, though certainly not entirely, of white growers. Each cooperative shares a commitment to seed commons, but in commercializing seed, they tug at similar issues of biocolonialism attributed to

¹¹ In “Beating the Bounds: How does open source become a seed commons?” Montenegro de Wit articulates the tensions and synergies of between OSSI and sovereignty movements. While there are more synergies than friction, tensions arise around the potential for OSSI to “continue to reproduce an industrialized point of view even if they seek to create an alternative.. ‘pledging seed’ –may create a kind of cognitive box with requirements for novelty and individual authority.” (Montenegro de Wit, 2019, p. 70). This kind of cognitive monopoly aligns with the epistemic foundations of biocolonialism.

multinational corporations. Predominantly white settler-owned companies profiting off these seeds can enact perpetuations of appropriation and exploitation of Indigenous farmers and farmers whose ancestors were enslaved in North American plantation agriculturalism.

The membership within each cooperative is not a monolith, and growers and cooperatives as a whole have different levels of comfort, engagement, and capacity to address issues of seed rematriation. Snake River returned Oneida hominy corn to the Oneida Nation after Oneida growers reached out through ISKN. After some discussion around options for royalties, they ultimately decided to pull the Oneida hominy corn from their catalog and send the stockseed to Oneida growers. While returning seed to original stewards felt like an agreed upon protocol, this exchange occurred when Snake River was not a cooperative and the founder and employees could more nimbly make decisions. Now, employees have some central authority to decide what enters the catalog, but there is distributed accountability among the co-owners to decide how to engage with their own seed stocks and with democratic decision-making for the cooperative as a whole.

Financial reparations is a related, but distinct decision and process for Snake River. Snake River was one of the seed companies that contributed to Ujamaa's call for Reciprocal and Reparative practices. 2023 was the fourth year in a row they sent \$1000 to Ujamaa, in addition to payments to Idaho Indigenous Alliance and the Native American Food Sovereignty Alliance (SRSC Board of Directors and Employees, 2023). As they have hit their own growing pains, this financial redistribution feels more challenging than the material return of seeds. *"We're not in as good a financial position now, so we can't do it as much as we could before. When it comes to us having seeds other folks dont think we should have, we're like ooh we better listen to that. When it comes to cash money it's a different story."* (O'Leary, 2023). This tension comes from a

shortage of one resource and not the other, but it also comes from an understanding of seeds as something the cooperative stewards, rather than something proprietary. That is, the cooperative is not claiming ownership over their seeds, and will readily redirect seeds to original stewards. Money, however, is the basis of supporting the livelihoods of their growers and employees, and decisions around its distribution are collectively made and more complicated. In this way, the vegetal politics of both seeds as belonging to commons and seeds as relations emerge as directing cooperative practices.

BC Eco Seeds growers are also having member-wide and one-on-one conversations around rematriation and seeds closely tied to their Indigenous stewards. The examples I observed were dealt with on more of a grower-to-grower basis. In particular, I had conversations with two separate growers about a tobacco seed lot sent in for the 2024 catalog. While visiting their seed packing offices, the BC Eco Seeds member and employee showing me the space started talking about tobacco seed a grower had just sent in. All of us had been excitedly looking through the box of seeds, abundance held in repurposed jars and empty protein powder jugs. As we looked at a tobacco seed, the BC Eco Seeds member recounted a recent conference they'd been at where an Indigenous seed grower was talking about Indigenous seed sovereignty and rematriation. "She said, 'if you have tobacco in your seed catalog, maybe just...don't.'" I asked what they thought they should do about this seed with that in mind. The employee and member, both knowing this grower was engaged in issues around seed justice said they would text them and open up a conversation about whether or not the seed should be listed. If listed, they would ask about what kind of narrative ought to be included in the description.

Nearly a month later, I interviewed the grower, Loki Wallace. When I asked generally about how they thought the cooperative could navigate rematriation practices, Wallace told me

about the tobacco seed. I include the full quotation here because it is representative of the ways in which these issues cannot be solved with blanket statements or protocols:

“A couple of years ago, I was gifted some tobacco seed from an Indigenous healing garden here in Vancouver. When I was given that seed, I was told, you know, grow it, gift it, sell it, it's your seed. And I grew it. I have gifted a lot of the seed, and I've got the seed for sale on the coop website. But this still doesn't sit right. You know, I'm selling Indigenous medicine seeds, let's acknowledge that that's what these are. But it felt just so like, such a colonizer move, you know.

So I reached out to the person I had gotten the seed from and who had grown it out previously. She's a local Indigenous activist, particularly in seed sovereignty and food security, here in Vancouver. I recognize that one Indigenous person does not speak for all of indigeneity, but she is the specific person who grew the seed, and I got it from her. I just let her know, like, I don't feel great about this, this is what I do already. These are the practices I have around donation, and so on and so forth. But I don't feel like this is enough. First of all, she said, ‘we love it when non-Indigenous people grow this seed, it's okay for them to smudge with it, to pray with it, we extra love it when they grow it and process it and curate and gift it back to elders.’ Huge thing. ‘But you could pledge a greater percent of the profit you make off of this seed to this particular organization.’”
-Loki Wallace, BC Eco Seeds grower and coordinator

Wallace donates 10% of their seed revenue to various communities, and increased the percentage of sales from the Wild Tobacco seed to 40% being redistributed to the Aboriginal Mother Society Center in Vancouver. This percentage and the recipient are listed in the catalog description. But, the Wallace added, this model works when seeds are exchanged from one person to another. *“If I'm selling potatoes, I'm not, you know, which organization in Peru do I send money to, right?”* It is the social relations of seeds that direct many coop members' decision-making, and as Wallace points out, some of these social relations have been severed, while others fade over time as part of the exchange of seeds and ideas that has characterized global, ecosystemic relations since time immemorial. In this way, we see how seeds assert an agency of their own, unable to be fully traced, defined, or enclosed by corporations and agroecological seed growers alike. Members of these cooperatives find ways to work with this

reality and these vegetal politics of seed as they participate in healing through rekindling their relationships with their ancestral seeds and returning seeds to those whose ancestral relationships had been actively severed.

What is notably distinct to cooperatives, as opposed to other like-minded seed companies, is the distributed versus centralized accountability for rematriation and seed provenance. At BC Eco Seeds, individuals need to have their own personal relationships to the provenance of their seed and decide as individuals how to write about the seed history or redistribute a portion of their sales. BC Eco Seeds is navigating rematriation through conversations, both as a full membership and between growers, rather than as a voting issue. To hold each other accountable requires trust and interpersonal relationships between growers or employees who see another grower selling seeds they are not sure are appropriate to sell. Alternatively, at Snake River, the employees have discretion about what goes into the catalog, and though the Board can make centralized decisions about monetary payments from the cooperative at-large, they are still accountable to their growers. Ujamaa also has centralized sites of rematriation in their collaboration with Seed Savers Exchange, but the healing work of re-engaging with seed provenance and ancestral seeds is decentralized and personal. Cooperatives seem particularly well suited to conversations around Indigenous seed sovereignty and rematriation precisely because of their practice of decentralized decision-making and collectivist learning. They can contextualize each seed lineage and process of rematriation because growers are accountable to their seeds. At the same time, they can hold one another accountable to their vegetal politics and ethics as cooperative seed stewards and builders of seed commons.

Cooperative Governance and Seed Stewardship are Entwined

Cooperative governance both shapes and is shaped by seed inventory and catalog management. As the cooperatives develop, informal systems for coordinating production across growers have evolved into more structured systems. Snake River uses a seed “steward” and contract system that operates similar to other seed retailers but with increased transparency. Triple Divide, BC Eco Seeds, and Ujamaa all maintain fairly unstructured cooperative crop planning systems where growers can grow whatever they would like and the cooperative will try to sell it for them. As they have hit inflection points in their growth, production coordinators at BC Eco Seeds and Ujamaa are thinking about refining and formalizing systems to better serve their membership or mission. Triple Divide has not yet reached a scale where their informal model of variety distribution is seen as inadequate for financial viability or grower engagement. However, one grower speculated that a more intentional system for grower coordination in inventory management could make their catalog more attractive and improve their sales. These structural evolutions parallel the cooperative’s governance evolutions, as decision-making power in the cooperative implicates growers’ stewardship of seeds.

Snake River has the most defined system for variety delegation of the four cooperatives. clear system for stewardship and variety delegation that is coordinated and regulated by the employees. Where the other cooperatives allow growers to decide what to grow, Snake River has found that a more centrally controlled production plan creates a more sustainable seed inventory.

In addition to employee oversight, their system also integrates seniority among growers. O’Leary sees this as a way to build commitment, even though it can also limit the varieties new growers in the cooperative are able to take on. The Snake River system involves “tiers” of

grower involvement with a variety. *Stewards* do more than just grow out the seeds. They take responsibility for a higher level of crop improvement through selection and choose which traits they want to select for. Some stewards, especially growers at higher altitudes and latitude, may select for crops that do better in a shorter growing season. Other stewards may choose to select for flavor or drought tolerance. *Producers* grow out seeds for a variety, but not as stewards. They may just be interested in growing it one season or not have the capacity to do selection rigorous enough for *stockseed*, that is, the seed a company sends to growers to grow out for production. Stockseed are the highest quality seeds from the most true-to-type plants.

The coop offers a contract for a specific variety first to the “primary steward” of the variety. If the primary steward turns it down or can’t grow enough then it goes to the “secondary steward.” If neither steward wants to grow the crop that season, it is listed as “available” when the crop list is sent out to all growers early winter. Anyone can sign up to grow the variety if it’s on the available list, but you have to have grown that crop before (not necessarily that variety) if you want to become the steward. As the board members said, there is a certain amount of hierarchy involved in this, but having stewardship seniority also incentivizes commitment among growers. This commitment is to both the cooperative and to the seeds themselves.

While growers also introduce varieties into the cooperative, employees ultimately have final discretion around which varieties the coop will buy from growers and include in the catalog. *“That’s a complicated thing right there, again, what is enough? How many lettuce varieties are enough? That answer might be different based on if you’re a grower.”* (*Snake River Board Member*). The employees have the final say because they are most attuned to the inventory management realities of the cooperative. They want to avoid varietal redundancies and increase incentives for the more challenging, but saleable varieties.

The decision-making power held by employees at Snake River is intentional, but as the cooperative has changed, members' wonder if this distribution of power still makes sense. While the cooperative was forming, the initial founder pushed for more management responsibility to be under the employees' control. They were the ones most in tune with the operations of the business as a whole, and the initial employees had all been involved in the company for years. In 2023, Snake River experienced significant employee turnover. Now that there are employees, some owners and some not, with less relationships to the existing growers and less familiarity with seed growing, the level of decision making power and responsibility is a site of uncertainty. For their part, the employees are building a shared leadership model that will help to build distributed, though overlapping, responsibilities. They have asked Board members to join specific "Circles", or working groups, to engage the Board members, especially the growers, in more of the operational decision-making. These circles reflect a shift towards practices that expand the cooperative's capacity to cope with and adapt to change, rather than resist change-- a key principle in socio-ecological resiliency theory (Folke, 2006). In creating "circles", including a Finance Circle and a Vision Circle, the employees have engaged the membership in emergent organizational structures that can more dynamically address change and instability.

To a lesser extent, BC Eco Seeds has also built emergent decision-making structures as production and inventory management goals shift. Led by the Board of Directors, BC Eco Seeds cooperative has decided to recenter their mission of providing local, bulk seeds to regional farmers. In doing so, they are reconsidering how they coordinate grower stewardship and variety production as they. Historically, the cooperative has coordinated varieties through a spreadsheet

that ensures no two growers produce the same variety¹² but otherwise allows growers to choose what they grow and introduce to the cooperative. In January, a shared crop projections spreadsheet goes out to all members. The sheet includes what coordinators already know each member intends to grow or what the members submitted for the previous year. They use the spreadsheet to confirm whether or not each member intends to grow those varieties for the coming season, and ask which varieties they plan to add for the upcoming season.

The cooperative has reached a point in their development where they need more management of varieties, and this has prompted new decision-making structures around seed production management. The incoming cooperative coordinator set an intention of increasing BC Eco Seeds's base of farmer-customers during their term as coordinator. At their annual member meeting, the Board brought up that in the future, to achieve that goal, they may require growers to grow larger quantities of fewer varieties. While membership was on board with this shift, they are just beginning the process of how to make that transition. In January 2024, the new co-op coordinator, who is also an owner-member, put out a call to form a member working group to plan how to better serve farmers in the region. This group includes not only Board members and long time members but newer BC Eco Seeds members. It also includes both fresh market farmers who grow seed and producers who exclusively grow for seed. While the Board is responsible for most of the decision-making at BC Eco Seeds, this significant shift in their seed management created the need for a space for deeper engagement among members. Like Snake Rivers' shared leadership "Circles", the formation of the farm-customer committee represents the emergent governance models attendant to specific needs as the cooperatives grow.

¹² BC Eco Seeds sells both Organic-certified and ecologically-grown seeds (grown using organic principles, but not certified).. There may be two producers for a variety if one is growing Organic seeds and the other is growing ecologically-grown seeds.

Ujamaa Seeds has also hit an inflection point in their development, prompting their *Seed Farming and Operations* (Seed Ops) working group to push for a formalized seed grower intake and stockseed distribution system. The Seed Ops team is one of the Working Groups that makes up Ujamaa's governance structure. They provide support for Ujamaa's network through distributing seeds, shared equipment, and growing expertise to regional "seed hubs". In the winter of 2024, Seed Ops began planning and pushing for a concrete system of seed distribution. To adequately meet the needs of people in the grower network, the working group sees a need for a system "*that is clear in its intentions, and that is clear in its process as far as who is the grower and what it means to be a grower*" (Ujamaa Co-Director, 2024). Since launching Ujamaa Seeds, seeds have been distributed to growers through the decentralized seeds hubs and individuals whom Ujamaa representatives met at conferences around the country. It is not always clear which of these individuals will return seeds to the cooperative and in turn, who the growers are that could be better supported by Ujamaa to distribute or produce seeds.

Sharing seeds is part of how Ujamaa builds relationships to grow, and over the past few years, they have grown rapidly. Numerous partners have joined and pushed the group to broaden their scope of impact towards policy, storytelling, and educational programming. As co-director, Nate Kleinman told me, "*we're trying to build something, and we need as many people as possible*". The expansiveness of Ujamaa's intervention into the agrifood and seed system is a strength, and the reason many of its members got involved. In fact, many would likely tell you that selling seeds is far less important to them than the constellation of projects that are building cultural awareness and healing through seeds. However, while the economic viability of the cooperative as a whole is less critical to Ujamaa in its non-profit form, supporting growers financially and taking seriously the preservation of seeds in their care does require management.

Stepping up to clearer seed distribution systems within Ujamaa has spurred conversations about governance beyond grower coordination. Ujamaa was formed by decentralized leadership. They created autonomous working groups that were accountable to an administrative team comprising coordinators of each working group. These working groups continue to provide the scaffolding for distributed agency and empowerment among the Ujamaa network. In an organization pushed forward by engaged, but unpaid coordinators, however, working groups have not been able to build capacity for discourse around democratic decision-making as fast as Ujamaa as a whole has built its network and programming. In considering how to source seed, as well as how to distribute seed, the Seed Ops working group has centered a conversation around self-governance. In particular, they are trying to build a governance system for the working group that can ebb and flow with the seasonality of seed production. In doing so, they are both articulating the seed distribution and coordination that is already occurring and finding ways to better coordinate that internally and externally.

Triple Divide is coordinated through informal conversations, but rather than obscuring transparency or support for growers, their scale allows for this model to build collaboration across the member farms. Triple Divide, maintains a fairly informal governance structure overall. Decision-making is done by consensus and includes growers who have not officially joined as co-owners. *“It’s not a big group so it’s easy to operate on our personal relationships and not on how things are officially,”* Leslie Kline, one of the founding members of Triple Divide, said. These personal relationships shape their delegation of varieties. Kline, a grower-owners and host of the seed offices, checks in with growers in the winter about what they plan to grow, often over the phone or by email. She offers ideas to the newer growers, and often coordinates the transfer of stecklings between growers. There may be more than one person

growing a variety. In that case, they decide by consensus whose seed lot will be sold first. While certain growers may be more experienced in certain varieties and are their de facto primary producers, the growers also openly redistribute varieties if one farm has a more suitable climate or crop rotation for a variety. Though the flexibility to transfer stewardship depends on each grower and their scale of seed production, Triple Divide is largely able to share and adapt because of their small size and commitment to learning.

For many cooperative participants, democratic decision making not only granted them more agency in seed production, but it felt like political action towards alternative seed economies. Each cooperative has formal structures to bolster democratic and equitable decision-making.¹³ The degree to which these formal structures actually represent decision making within each cooperative varies. In fact, it is the informal or emergent structures of decision-making power that interviewees often articulated. Like many organizations, the cooperatives each have their own version of working groups or committees to enable more collective or decentralized decision-making. Some working groups emerge temporarily (ad hoc) as a form of delegation within a democratic, but more trust-dependent, streamlined decision-making structure (BC Eco Seeds, Triple Divide). Other working groups operate as standing groups that are part of intentional shared/horizontal leadership structures (Ujamaa, Snake River). Many of these emergent and established governance structures formed in entanglement with the cooperative

¹³ A traditional producer cooperative is governed by 1.) A Board of Directors, typically 5-8 owner-members who meet four times per year to make and push forward structural decisions. Board members typically have term limits. Some boards include non-member technical experts (including BC Eco Seeds). 2.) Member-owners who vote democratically on decisions during Annual Member Meetings, and 3.) Employees who make day-to-day business management decisions and may or may not be owner-members. The bylaws of a cooperative business delineate the official governance structures including electing and removing directors, time of director meetings, term limits and compensation of directors, and responsibilities and rights of members (Galen Rapp & Gerald Ely, 2015). Ujamaa, as an initiative within a non-profit entity, does not have owners, but has a written governance document that delineates similar structures around co-director, admin, and working group responsibilities.

members' goals for seed stewardship and transparency. While this section introduced some of the elements of governance that emerged for seed grower cooperatives, the next section on coop decision making is interested in the processes for instigating and responding to change. How do cooperatives operationalize democratic and distributed seed stewardship systems while balancing their desire for stability, growth, and democratic ideals?

The Growth Pains of Cooperative Governance

The cooperatives in this study have built creative and diverse economic practices, but they still contend with pressure to sustain themselves within a growth-oriented capitalist regime. To adapt and confront changes in the face of growth pressures, cooperatives have each returned to recenter or revise their initial missions. The process of revisioning or recentering a founding mission first re-engages membership in discourse around governance, vegetal politics, and stewardship, a form of “scaling within” from post-growth theory that highlights the work of internal relationship building (Colombo et al., 2023). Second, revisioning brings into focus the particular agrifood system intervention they want to make. Members' orientations for growth may be geared towards disrupting the corporate hegemony of the formal seed system or it may be more concerned with carving out a niche for their shared learning and healing through seed production. With that in mind members' and cooperatives' visions of what positive growth and development looks like can and should vary across cooperatives. In identifying where and at what scale they aim to build disruptions or alternatives to existing seed and farming norms, they seek to grow with consensus, albeit potential compromises.

BC Eco Seeds has experienced steady financial growth and has added new growers to their membership most years. Still, the coordinator and treasurer of the cooperative felt like the group has not yet found the scale that makes sense. When I asked different members what their long term ideals for scaling or cooperative success looked like, one founding member said that success would be every farmer in BC selling some amount of seed through the cooperative. The former member coordinator, Chris Thoreau, made the case that to actually make an impact in the formal seed system, and in Canada's import-oriented seed system in particular, they have to get significantly bigger. *"I'd like to see the coop being like, a ten million dollar a year thing. [The other members] couldn't even believe that number. But in the modern world, it's a blip of a business...If we want to make a difference we need to be bigger"*. As of 2023, the cooperative was making just about \$110,000 in annual revenue. They were able to maintain the jolt in sales that came with the COVID-19 pandemic, in part by raising prices on their seeds. From 2022 to 2023, their sales increased forty-percent (Thoreau interview, 2024). The incoming Member Coordinator's role will be focusing on increasing sales towards this goal of growth, with the specific strategy of bringing in more BC farmers as customers. They are working with the newly formed member committee to do so. While everyone was on board for a change to produce seed at scale, this change also means a shift in the bread of stewardship the cooperative can support. The outgoing coordinator also expects that it will exclude smaller growers from becoming coop members in the future. It is worth noting that while members have somewhat different ideas around what growth could look like, BC Eco Seeds was founded with the specific goal of increasing local bulk seed access to farmers. To remain solvent and offer affordable bulk seed ultimately asks for a different level of efficiency than packet sales for gardeners. The other three cooperatives in this study, who's founding imperatives were more oriented towards increasing

seed grower capacity, bioregional seeds, and diverse seed stewardship more generally, are less clear about how to grow.

Snake River has created a Vision Circle, made up of Board members, employees, and growers (members and non-members) to intentionally revisit their shared goals for the cooperative as they navigate instability from the past two years of significant change and growth. In this circle, they hope to negotiate their ideals for scaling, market impact, and how to support both larger seed producing members and the next generation of seed growers. For Snake River, grower size is a significant conversation within growth discourse right now. *“If we're buying in \$65,000 of seed a year from 40 growers, like what are we even doing? ...Maybe we ought to be focusing on these tiny people who don't care about the money, but they can just do it while we're figuring it out. So we don't know the answer. I mean, the answer for us has always been you need both.”* (O’Leary interview 2024). Even if the cooperative sees a need for both types of growers, supporting them in practice is more challenging. Larger seed producers want to be able to move more seed through the cooperative, which currently can only support a small percentage of their income. At the same time, changing systems to improve efficiency and potentially move more seeds for larger growers, could mean excluding the smaller growers whose small seed lots can be cumbersome to process. These small growers are both the next generation of seed growers that the cooperative hopes to foster, and they are community-members that Snake River wants to engage as part of a self-reliant community seed shed. For O’Leary and other Snake River Board members, disruption of the corporate seed system is the long term end of commercialized and centralized seed. *“We joke that there won’t be seed companies if we’re successful in this.”*

That vision is far off for now. In the meantime, Snake River is trying to figure out how to increase revenue for their growers and salaries their employees. This requires market growth.

“We don’t actually have a good hand on how big is big enough. It’s not something that all of the owners are on the same page about. And not something all our employees and growers are on the same page about” (O’Leary interview 2024). As costs of living rise in Boise, where the Snake River offices are located, a living wage for employees has surged, and there are more employees now than before they co-operatized. Meanwhile, the cooperative is still working through their bloated inventory that the cooperative built up after COVID-19 threatened to deplete their stores. The business bought in far fewer seeds in 2023, and the payments to growers were nearly half of the 2022 grower payments (Snake River 2022 and 2023 benefit report, O’Leary 2024).

Each grower throughout their Great Basin EcoRegion sees areas where there is a lingering need for regionally-adapted seed, and the cooperative would like to scale out by finding market outlets for those areas. When Snake River talks about growth as reaching the areas where growers still see a lack of regionally appropriate seed, those areas include Triple Divide’s delineated region. While owners at both cooperatives want to promote a collaborative system with more options for regionally-adapted seed, they are also negotiating the very real potential for competition and undermining Triple Divide’s relatively small market. The January conversation between the two Boards represents both the desire for inter-entity collaboration, as well as the tensions that come up for cooperatives around balancing financial viability and wealth building for their growers, while holding onto their values around seed systems and collaborative economic models.

This conversation also puts pressure on Triple Divide to consider what kind of growth they want to start planning for. Triple Divide growth has been consistent, but slow for the past decade. Two founding members of the cooperative emphasized to me that the cooperative was

more about education than revenue. When I asked about what growth or success for the cooperative looks like, one said, *“I’m not sure that is the point.”* He reflected that growth has been slow, but the cooperative continues to pay for itself, and more importantly, conversations are being had around bioregional and transparent seed systems. *“Ten years ago there were no grad students calling to talk about seed research.”* With collaborative learning and education at their core, Triple Divide members have been able to mentor younger seed growers. Three of the younger, recently-joined growers of the cooperative all emphasized how invested established cooperative members have been in their success and learning. That engagement makes them feel empowered and part of something bigger than themselves.

At their annual member meeting in November, TDS members expressed that they were eager to reengage with educational programming. Six members resolved to form an education committee that would re-engage the social side of membership that had faded since COVID-19. Some were driven by the desire to get together with one another, because their shared trainings had been a highlight of the cooperative in the past. Others, particularly the newer seed growers, wanted to contribute to the group while creating opportunities to build technical seed production skills, others were interested in building public awareness about diverse crop varieties (*bird notes from TDS AGM*). As one grower said, *“the social side, coming up with a vision of what we want to see, that hasn’t happened in a long time...How do we engage? Somebody to light a fire under us.”* (Triple Divide co-founding member). Leaning into their shared mission for collaborative education can reinvigorate their ability to move the cooperative forward, in particular, to navigate the changes attendant to financial and market pressures for individual growers and the business as a whole.

The other founder, who emphasized the core goals of education and learning, acknowledged the need to balance that with “*paying the mortgage.*” For several of the founding members, that has not necessarily meant increasing the sales of the cooperative, but maintaining other income as their primary source of financial stability. While this works for many of the older and more established growers, newer growers need more financial support. The founding members all own their land and operate their own fresh-market farms with established market outlets, contracts with the Montana Growers Cooperative, or farm-based non-profits that supplement their income. As farmland financialization increases and a flood of urban-to-rural or climate-change motivated domestic immigrants purchase primary and second homes in these rural agricultural regions, land values have become untenable for beginning farmers across the country (Ackoff et al., 2022; Ashwood et al., 2022). The three younger growers I spoke with all lease their land. In different ways, they are struggling with consistent land access or confidence in meeting the financial obligations for rent and eventual co-ownership. For one of these growers, the fact that Triple Divide is still growing and building momentum is part of what makes it a “warm and inviting” space. At the same time, because of its size, she realized early on that growing seed for the cooperative could not provide income enough to even partially support her, “*this is not even a part time job. It's kind of just like a little tax bump at the end of the year...It's a hard truth to learn.*” At the end of our interview she added, “*You're asking one of my biggest questions. Is this possible to do on a larger scale, or in a way that people can rely on and is more sustained?*”

In one sense, Snake River provides an example of a cooperative that is approaching this larger scale. At the same time, Snake River has grown into a particular space that feels unstable. The operations manager at Snake River asked me about systems at the other cooperatives I spoke

with. When I responded outlining some of the processes and people involved, she realized that they were operating at a significantly different scale. *“It’s cool that you’ve gotten a chance to talk to all these smaller cooperatives, which is where we started out... [now we are] moving into this kind of operation that’s not quite making it. We’re in a weird spot, and it’s hard to break even at this spot. It’s a sink or swim kind of space.”*

Despite being in a different phase of development from the older three cooperatives, Ujamaa is facing its own questions around growth, grower and employee livelihoods, and values. Growth happened fast within Ujamaa, and it involved numerous partners and distinct projects. As Kleinman says, “the good still happens,” but there is an emerging imperative to create some clarity out of the bubbling, powerful, organized chaos of Ujamaa and its many partnerships. For some, that will involve finding Ujamaa Seeds’ “forever home” as a legal entity and for others, like those on the Seed Ops team, it involves systematizing growers and seed hubs. Still others see the role of distinct, tangible projects within Ujamaa as a priority for moving forward.

In building clear systems and structural foundations, Ujamaa members see the need to support their organizers’ capacity. Most of the Ujamaa organizers are invested in the organization, but are doing it without pay. Many do not have the capacity to engage in conversations about what shared decision-making should look like, never mind making the actual decisions. In some spaces, decisions are slow and rooted in consensus, in other spaces, decisions get made by whoever has the energy to be there and figure it out. With capacity-building in mind, onboarding paid employees has come up as an urgent priority for their development plans at their Annual Fall Convening and within certain working groups. Even designing systems for paying employees asks for more time from the organizers. One co-coordinator told me that some of the Ira Wallace Seed School organizers were trying to get the

team of planners to track their hours as a baseline. For at least one organizer, tracking hours requires even more energy and time that they do not have to offer. Instead of focusing on payments -- while acknowledging the importance of that compensation-- this organizer sees the creation of tangible projects and systems within Ujamaa's broad range of initiatives as a means of developing structure and member capacity.

The Ira Wallace Seed School that launched in March 2024 is one example of a clear project that has engaged new members of Ujamaa. The Seed School planning committee, who designed curriculum and planned logistics, brought existing members into deeper engagement, while the school itself has introduced new individuals and brought them into the community. The Seed School is an online and on-site course for BIPOC growers that aims "to give BIPOC growers the skills, knowledge, as well as the moral, political, and historical framework to become ethical seed practitioners." (Ujamaaseeds.com, accessed 3/26/2024). The school is teaching seed production skills while bringing together a group of experienced and nascent seed workers with similar values, ready to engage in community building and shared political understanding of their seed work. As one co-coordinator expressed, *"They've really started building community amongst themselves, and something that I want to make sure to do is to encourage the Seed School students to really feel like they're part of Ujamaa, because, hopefully, they can then push Ujamaa in certain ways that it needs to go"* (Ujamaa co-director 2024). Like the other cooperatives who are revisiting their mission and cooperative vision in order to develop, Ujamaa's Seed School is one space for existing and emergent members to build the shared politics and vision that can shape Ujamaa's development.

As we see through the ways the cooperatives are navigating growth pains, these agroecological seed cooperatives emerged not only for the stewardship of agricultural

biodiversity, but to reinstate self-determination and seed sovereignty counter to the consolidated corporate seed regime. The seed cooperatives in this study are re-establishing producer-led economic models that re-embed growers and seeds themselves within their communities. Prefiguring these producer-led models is not idealism (at least not entirely), but a pragmatism towards more resilient agricultural systems. They have each hit inflection points, and likely will again, wherein their desire for agrifood system intervention contends with their desire to steward diversity of seeds and growers. In re-engaging in social relationships, visioning, and vegetal politics, the cooperatives are persistent as diverse economic models led by growers with holistic understandings of seed system resiliency.

In articulating and performing these grower-led and diverse economic mechanisms and practices, the cooperatives create more tangible possibilities for what pragmatic seed systems can be. U.S. and Canadian policy makers and funders have consistently pushed back against farmers' rights provisions in international and domestic agricultural and trade agreements (Phillips 2008), deeming certain grower-led and deconsolidation programs as "inefficient, irrelevant, obsolete, and grievous government overreach" (Graddy-Lovelace et al., 2023). These provisions are only inefficient and irrelevant, as Graddy-Lovelace et al. address, from the perspective of those benefiting from "a system that profits from commodity crop overproduction and agroindustry consolidation" (Graddy-Lovelace et al, 2023). The seed grower cooperatives in this study instead center a system that builds wealth through recommoning, distributed but collaborative stewardship, and an accountability to their communities, but also seeds as their more than human partners.

Conclusion

This thesis draws on the structures and discourse of seed grower cooperatives to argue that their diverse economic models subvert the enclosures of seeds and reductivist agricultural development by proliferating re-commoning and collaboration. To demonstrate and theorize how these organizations' practices of knowledge-exchange, dynamic governance, and cooperative seed stewardship constitute possibilities for agroecological futures, this thesis analyzes the examples of BC Eco Seeds Cooperative, Snake River Seed Cooperative, Triple Divide Organic Seed Cooperative, and Ujamaa Seeds. I explore how seed grower cooperatives are positioned to resist multiple seed system norms: the consolidated neoliberal seed regime, the lingering lack of transparency and grower agency in the small-scale, agroecological seed system, and the individualism and private-ownership ideals of the Yeoman Farmer myth.

Cooperative members expressed a desire to move away from capitalist paradigms, and explicitly chose mutualistic and collaborative models as their alternative. The distinct practices incorporated into their collaborative models emerge from and perpetuate knowledge-exchange and spaces for shared education. Given this on-going knowledge-exchange, cooperatives' decisions are rooted in a vegetal (economic) politics informed by the agroecological seed network, their specific membership, and the seeds themselves.

Relatedly, I present the ways that governance directing the cooperatives' creative business structures emerges to not only distribute power across growers, but to distribute accountability to the seeds they collectively steward. I share how working groups, committees, and power redistribution emerge to enable better systems for attending to the responsibilities that individual growers and cooperatives as a whole have to uplift their human members and to respect the seeds they generate and disseminate. Together, these organizations make decisions

that consider the material agency of the seeds they work with, including how easily members can grow high quality seeds from specific varieties, how important those varieties are, and to whom the seeds are important. Finally, this thesis presented the similarities and incongruities between cooperatives as they are faced with questions of financial growth, economic accountability to their members, and the ability to make the socio-ecological impacts they set out to. The cooperatives have all found tension between the pressure to develop their market to better support grower and employee livelihoods and the need to be accountable to seeds and growers as autonomous seed stewards. To address this tension, each of the cooperatives have returned to their distinct mission, recognizing a need to be targeted in the interventions they want their seed cooperatives to make.

Articulating the practices, politics, and limitations for these cooperatives, has implications for alternative food movements more generally by illustrating possibilities for agroecological economies. Many of the challenges that cooperatives face are those faced by the broader small-scale, regional agrifood movement. High land prices, limited market outlets, and the need or expectation among consumers for food and agricultural inputs to be “cheap”. Cooperatives in this study look to interdependency rather than individualism to address these challenges within their membership. More importantly, they enable collaboration inter-regionally and inter-organizationally to address these challenges.

This thesis is limited in its descriptions and theorizations of the knowledge and material exchanges that occur within cooperatives. Cooperatives are well positioned to be incubators for new seed growers. Most obvious to many cooperative developers, cooperatives can create an easier entry by providing shared marketing and equipment. In the case of some of these cooperatives, they provide not just seeds, but plant starts. More critical than these material

offerings, however, is accessible and reciprocal mentorship. These cooperative mentorships are rooted in interdependency— at a basic level the coops want to evolve and continue by bringing in new growers, and they need those growers to be successful. Coops provide not only technical knowledge, but ongoing and contextual knowledge-exchange rooted in vegetal politics for a more equitable, resilient seed system. Knowledge-exchange and collaboration with other farmers was frequently named as a key benefit of being a cooperative member. It is also a practice that is demonstrably supporting new, engaged seed growers. A deeper analysis and theorization of this cross-pollination of expertise and politics could contribute to more holistic models for beginning farmer education more generally.

Understanding the implications of collaborative networks across seed companies and organizations is another opportunity for further research. Articulating the agroecological seed system through a Social Network Theory framework could make legible the extent and capacity of the network to continue creating transformational change. Network Theory would also shed light on the rich array of cooperative seed production models occurring outside and beyond monetary markets. What space do they fill within seed sovereignty movements and how do they implicate commercial agroecological seed growers' access to agricultural biodiversity? As Montenegro de Wit writes, “the social matrix, it seems, is equally vital for seed diversity to persist in a dynamic mode, where the larger social network conserves meta-population stability while local re-introductions provide an opportunity for evolutionary and human selection” (Montenegro de Wit, 2016, p. 638)

This work is offered in admiration of and gratitude for these cooperative seed workers and the agroecological economies they are prefiguring. Knowledge from seed cooperatives and their members can contribute to the field of Agroecology and the scholarship of Political

Economy, particularly within the frameworks of Diverse Economies. These findings and stories can also inform more constructive support from cooperative development centers, universities, and seed system organizations that seek to transform the seed system towards increased resiliency.

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APPENDIX A

Seed Coop Stories:

BC Eco Seeds Coop

It was raining in Langley, British Columbia when I pulled into the gravel driveway of the farm that hosts BC Eco Seeds' office. There was a packshed, a small red barn, a hoop house, and two shipping containers tucked into the trees around the driveway. Plots for row crops stretched out under gray skies behind a farmhouse set back from the driveway, and more vegetable fields were obscured by the woods. One of the co-founders of BC Eco Seeds met me outside. He had offered to show me the office and to walk around damp fields which grow market crops, seed crops, and some experimental breeding projects for the residents on the farm. We stepped into one of the converted shipping containers that serves as an office and seed packing space for the cooperative. Two employees were packing seeds inside, surrounded by shelves of seed-filled jars and envelopes. It was January and seed lots had been coming in from grower-members across the Fraser Valley and Vancouver Island for the past three months. These two employees and the coop coordinator - a staff position typically held by one of the owner-members - were primarily responsible for receiving seed from around 15 grower-members (not all of the 21 members will send seeds every year), conducting germination tests, and processing orders.

BC Eco Seeds Cooperative emerged from conversations with several small-scale, regional seed companies and farms that already saved some of their own seed. Many of them had attended BC Organic Seed conferences or OSA's biannual Organic Seed Conferences and connected around seed work. While this agriculturally diverse region supported the emergence of a smattering of local seed companies in the 1990s and early 2000's, those companies focused on packet sales for home gardeners rather than bulk seed sales that market farmers could afford. Around 2006, conversations amongst local farmers evolved into plans for a farmer-focused seed company that would cooperatively grow regionally-adapted bulk seed for local farmers (BC Eco Seeds co-founder 2023). They formed a coalition of seed growers which included existing local seed companies. Focusing on bulk seeds rather than packet sales was intended to prevent competition with the existing seed companies and instead offer an additional market outlet. After a year in business, the group realized that a bulk seed company alone was not going to be a solvent business. They integrated packet sales into their offerings, distancing some of the seed company members, while making it lucrative as a supplementary outlet for other companies.

Growers selling through the cooperative have all bought into the business with an initial capital investment of \$500 and may sell anywhere from 3-30 varieties of seed through the cooperative. Since their founding by four owners in 2014, BC Eco Seed Coop has steadily grown, expanding their market and their membership with the goal of providing local seed to growers, particularly local farmers. Despite an initial mission to provide bulk seed for farmers, the coop is still figuring out the right scale and systems to enter this market rather than relying more heavily on gardeners and packet sales. The coop has a strong foundation and established

grower relationships, but figuring out how to appropriately scale to enter farm markets and increase their impact on the seed system is one of the aims of an incoming coop coordinator.

Snake River Seed Cooperative

The largest business among the cooperatives in this study is Snake River Seed Cooperative (Snake River) whose growers are from all around the Great Basin Ecoregion. In November 2023, I called into a weekend seed packing gathering at the Snake River office in Boise. They propped a phone up against a cup so I could virtually look in at the group standing around a tall table amidst shelves of sorted seed packets, while they scooping cleaned seeds from jars into packets. Nearly all of the employees and growers on the Board of Directors had made the trek, a several hours drive for some, to gather and help with seed packing before the 2024 catalog launch. They planned this second seed packing weekend for the Fall of 2023 with the hopes of making it a regular tradition. Last spring, when the cooperative was in the midst of employee turnover, board members organized to come support the office with processing. The board members realized that they enjoyed getting together for a task in person, and the growers in particular appreciated the opportunity to understand the processing side of the seed company.

Snake River was founded as a sole proprietor business. The founder put a lot of work into training new seed growers as a core base of their membership. For Snake River, that meant recruiting existing farmers in the region and even encouraging their farm interns or community members to try growing small seed lots. The founder of Snake River, Casey O’Leary, comes from a family of educators and skillfully built seed growing capacity in the region while forging community ties through seed keeping classes and public education (Snake River employee).

“[O’Leary] came to Moscow and taught a seed keeping class where our farm is. We’d been a farm for 17 years before that and we didn’t see how you could dovetail [seed production and fresh vegetable farming]. But we were interested right away. Casey was like, “no, you can start with a bed of tomatoes” (Snake RiverC board members).

Unlike seed or farmer education courses that are focused on production but without any grounding in community or regional networks, these seed keeping classes involve a clear vision and outlet for growers to participate in collaboratively. At first, this was a Boise-based seed library. As means of building capacity and commitment, the library evolved into a sole proprietor business, Snake River Seeds Cooperative. (Snake River 2022 (YouTube)). O’Leary was inspired by a presentation by the founder of Sierra Seeds, that showed the potential for seed cooperatives to facilitate even very small scale seed businesses to support emerging growers. There was one slide in particular that shared pricing structures for the cooperative. O’Leary noticed that the prices were by the ounce, unlike most seed company contracts which price by the pound. *“I was like, hey, those are small amounts... We could do this.”* (Snake River 2022 YouTube). From the

onset, Snake River was designed to operate cooperatively. In addition to new seed growers, O’Leary met experienced seed producers at OSA conferences and Seed Schools who became Snake River growers. These individuals became sources of organizational capacity building by offering specific seed harvest or cleaning information to other growers online or at the annual grower meetings (Snake River grower 2023).

While packing seeds, one Snake River board member told me about attending OSA’s first conference in the early 2000s. She sat at tables with the folks who would go on to start Adaptive Seeds and Uprising Seeds and listened to elders like Frank Morton calling for more seed stewards and talking about the deficit of available seeds. Sixteen years later, a new farmer, now a grower for Snake River, would attend the conference having never produced seed. He sat at tables with some of the same elders and became inspired to carry on their work and the movement they’d started. *“It felt like you’re back in the 70s or the 80s, people doing something revolutionary. You had all these this old hippies who’d been saving seed for like 30 years. I guess it felt more like new and exciting like something more of a growing [project] than a lot of our establishment vegetable farming”* (Snake River grower).

In January 2022, after nearly a decade as an LLC, Snake River transitioned to an employee and producer-owned cooperative. As of 2024, they have 15 owner-members including 4 employees and 11 growers. Amidst the collective pride around the coop and the goodwill and support among members, there is also uncertainty and a lot of work to be done to reenter stability as a larger and more radically owned and governed enterprise. The combination of the COVID-19 pandemic and the transition to a legal cooperative have placed the business in seemingly its most precarious place since the initial LLC’s founding. As the board members stood around the office table packing seeds, they talked about these changes, their questions around appropriate growth, and their goals for Snake River moving forward. Their multi-member class coop model and formal systems of organization, particularly for grower-coordination, make Snake River an important example for seed cooperatives.



Image from the Snake River website (snakeriverseeds.com, 2024)

Triple Divide Seed Cooperative (Triple Divide)

Perhaps the most intimately linked cooperative in this group is Triple Divide Seed Coop (Triple Divide). Their seed inventory is stored and packed in a farmhouse overlooking the Flathead River in the Mission Valley within the Flathead Indian Reservation. The day I visited, the fog was so thick in the valley that I could not see the river I drove along. I drove deeper into the grayness until I was met by a farmhouse, four huge dogs and a warm welcome by one of the Triple Divide growers. I realized how central this farmhouse in the fog is when I visited two nearby, younger growers and employees later in the day. Both growers had leased land to grow seeds with the support and encouragement of the established growers in the coop. The grower who hosts the seed inventory now would visit them to support their seed production or share stecklings (these are the overwintered roots of biennial crops, like carrots, beets, and onions) from other growers. The rest of the growers span a region of Western Montana from Whitefish, north of Flathead Lake, east towards Butte, and as far south as Hamilton in the Bitterroot valley. Many will drive to the farmhouse on the Flathead River to drop off their seed lots at the end of the fall. Some will stay for lunch or a drink. It has been hard for the members to get together in person since the COVID-19 pandemic, making it hard to maintain and build the social relationships within the coop. At the same time, all of the growers emphasized that the non-competitive space the cooperative creates for the members to learn from and work in collaboration with one another was the greatest benefit of the coop, and the success of the initial vision.

Several Western Montana farmers came together to develop **Triple Divide Seed Cooperative** with the support of a local cooperative development organization, Lake County Community Development Corporation - now Mission West Community Development Partners (MW). A few years before the incorporation of the coop, a core group of seed growers and farmers interested in saving seed and teaching each other how to save seed, started organizing “regional interest potlucks” (Demets, 2018) which garnered enough interest for MW’s cooperative developer to bring a Seed School to the University of Montana. At the seed school, the founder of Sierra Seeds, an Indigenous seed cooperative based in California at the time, spoke about their seed coop, spurring a conversation among the core group of growers about how a cooperative could benefit them. As one founding member said, “I think the cooperative idea came up right away, and everyone was like, yeah, absolutely. That's obvious way to go.” (Garber, 2023). The region already had a foundation of collaborative farming including a peer-to-peer farmer education network (Triple Divide grower) and many growers involved in the Montana Growers Cooperative (Triple Divide grower). With this cooperative baseline and the right support, the cooperative came together, leaning into shared education early on to continuously build organizational capacity and shared vision.

Triple Divide has 10 owner-members and about 16 growers total. All the growers, whether they have bought into the coop or not, are invited to the annual member meeting and

group decision making processes. This loose and open structure has sustained itself through trust and relationships between the growers since the coops conception. The group emerged amongst farmers with existing relationships and a desire to work collaboratively to support re-learning and improving their regions seed saving capacity. Established growers have shared plant starts, land, and growing tips with new growers. While financial growth has been slow, it has been steady. Some of the members are ready for a spark for scaling the cooperative up or out. It may not mean a dramatic increase in sales, though some growers would like to see that, but a resurgence of social connectedness around visioning for the cooperative and what the group would like to be. As one member expressed, “Coming up with a vision of what we want to see, that hasn’t happened in a long time...[we need] somebody to light a fire under us.” (Sutton, 2023).



Ujamaa Seeds / Ujamaa Cooperative Farming Alliance

Formed in 2020, Ujamaa Seeds (Ujamaa) is the most nascent of the cooperative cases in this study. Ujamaa’s mission is to increase access to culturally meaningful seed for BIPOC communities. The collective of growers emerged in a moment distinct from the other four cases. Socio-political concerns within the seed system have extended beyond seed sovereignty as a response to corporate control towards a more entwined understanding of corporate control, biopiracy, and Indigenous and diasporic seed sovereignty. STEAM Onward, a non-profit focused on STEAM education for BIPOC youth connected with EFN’s Cooperative Gardens Commission (CGC) initiative during the 2020 COVID-19 outbreak. CGC was working with community garden hubs, including STEAM Onward, to distribute free seeds to community gardens around the country. In receiving and distributing the donated seeds to their Maryland community, it became clear to the STEAM Onward team that there was a huge gap in available seeds for their predominantly Black community’s culturally important foods and plants. The gap in culturally important seed represented a gap in BIPOC producers throughout the seed system. This spurred the vision for Ujamaa. They build access to culturally important seeds and uplift BIPOC farmers in producing those seeds through shared education and an available market. “*We started conspiring together to get people growing, thinking about and growing seeds, you know...I could see there was energy and passion and obviously a huge hole in the seed industry, where people of color should be*” (Ujamaa co-director 2023). Representatives of Ujamaa presented at 16 conferences and events in their first two years as a collective (Ujamaa Annual Report, 2022). By doing so, what began as an active WhatsApp group tapped into seed producer networks and BIPOC farmer networks to begin forming their cooperative seed growing

organization. The initial coalition of primarily Black farmers and gardeners quickly garnered support from many in the predominantly white seed industry. People recognize the gap in culturally-meaningful seed for BIPOC communities. That gap in culturally-meaningful seed in these communities, represents the gap in BIPOC growers. As co-director and early Ujamaa visionary Bonnetta Adeeb said, it was “where we belong. In the middle of the story” (Adeeb, 2023). As of February 2024, the group has put out their fourth seed catalog and organized a decentralized network of seed hubs to distribute their seeds and build seed growing capacity. They work with universities and non-profit groups to integrate oral histories and seed stories into the fabric of their seed production and sales work. They have also launched the first year of the Ira Wallace Seed School, led by experienced Ujamaa seed growers. This development is all happening as a project of the non-profit, STEAM Onward, and for many, it is already a cooperative in the way they understand cooperative models. The team of co-directors and working group participants continue to be in conversation about Ujamaa’s “forever home” as a legal entity.

APPENDIX B Methods for Capitalizing a Coop

Table: Sources of support for cooperative development

Financial Support	Technical and Community Support
<ul style="list-style-type: none"> ● Grants: Specialty Crop Block from State Ag Depts, Pandemic relief, Value Added Producer Grants (USDA), Cooperative Development Funds (Co-Operators), Social Economy investors/foundations (SK2), ● Community investment: Ujamaa reparations program, BC Eco Seeds community fundraiser 	<ul style="list-style-type: none"> ● Cooperative Development Specialists ● Cooperative accounting groups ● Organic Seed Alliance, Bauta Family Initiative on Seed Security ● Other seed companies ● Researcher and university partnerships

Incubators**Non-Profit Incubators:**

The non-profit Farm Folk City Folk (FFCF), a regional representative of the Bauta Family Initiative on Seed Security served as an incubator for **BC Eco Seeds** coop until 2014 when four growers bought and incorporated the project as a legal cooperative. BC Eco Seed Coop and FFCF created and signed a Memorandum of Understanding to acknowledge the role of the non-profit in launching the cooperative enterprise. The two organizations continue to work closely together. Coop members are or have been FFCF employees, and BC Eco Seed coop's annual member meeting is held at the B.C. Organic Seed Conference hosted by FFCF in November.

Ujamaa is still a project of the non-profit STEAM Onward in Maryland. The initial group of co-directors had a conversation about whether or not to incorporate Ujamaa as a separate legal entity from the start. Collectively, they decided to incubate under the non-profit STEAM Onward, whose mission was aligned enough. For them, the non-profit incubation offered time to design their cooperative and make collective decisions about what Ujamaa wanted a longer term legal entity to look like. These conversations continue within the Governance working group.

Sole Proprietor or LLC Incubators:

Snake River did not have a non-profit incubation phase, but was founded first as a sole proprietor business in 2014. By 2018, the company sold seeds from 29 growers and held

annual grower meetings to discuss finances, share production challenges and standards, and socialize. The founder and core employees and growers intentionally designed this annual grower meeting to resemble a cooperative's annual member meeting. The employees also engaged with these cooperative practices before transitioning to a formal cooperative. *"We tried to treat it like, 'Oh, you're the expert in online orders, you tell me what would work best.' That kind of thing."* (Snake RiverC board member, grower). As the founder began to transition out of full time farming in 2019, the founder, operations manager, and a community member who specialized in sustainable economies law, reached out to growers most involved in the business to form a steering committee for developing collective ownership and management models.

Financial Support and Capitalization Methods

Finding the right incubation partners or community investors can support cooperative development while establishing a base of partners and invested consumers.

Grant Sources:

Triple Divide Organic Seeds, had a paid staff member from a local community economic development center who was able to dedicate their time to cooperative development for the growers. This staff person was paid through **grants and in partnership with OSA**.

Similar organizational development, grants from USDA or non-profits (eg. the Sun Valley Institute for Snake River and The Co-operators for BC Eco Seeds) provided critical support for accessing infrastructure that allows the cooperative to function efficiently and with financial viability for its members. USDA Rural Development program offers grants for new and existing rural development cooperatives while Specialty Crop Block grants, COVID-19 relief grants, and Value-Added Product grants have all supported infrastructural investments for Snake River and Triple Divide.

Traditional Lending

For the businesses that do choose to officially incorporate, there are certain banks and loan programs that cater to cooperatives. For example, cooperatives as defined by the Farm Credit Act of 1971 are eligible to borrow from the banks for cooperatives in the Farm Credit System (USDA, Rapp and Ely 2015). At the same time, many investors are reluctant to invest in cooperatives given that their investments cannot translate to decision-making power within the democratic entity (Farm Commons 2016).

Community Fundraising

Investment calls can be more creative than traditional shareholder structures or financed loans. Asking for direct community support could build a social embeddedness for the cooperative and recenter relational exchange over abstract transactions and financial actors. BC Eco Seeds crowd funded from community members in 2020 to build capacity during the COVID-19 pandemic (BC Eco Seeds website 2024). Ujamaa directly asked established seed companies for reparations in the form of monetary support (Ujamaa co-director 2024).

APPENDIX C: Sample member interview template

This is a general outline of interviews with seed cooperative members. Questions changed based on the interviewee, where the conversation went, and how my thesis framing was evolving.

Background and Personal Experience

1. How did you start seed farming? Did you have any key mentors or programs that ushered you into it?
2. How do you want your seed saving or seed production to change or grow over time?

Seed Cooperatives Involvement:

1. Will you tell me about how you got involved with (the coop)?
2. Why do you think the value of the seed producer cooperative is?
3. What does growth or success of the cooperative mean to you? (Not necessarily financial)
4. How have you or your seed business benefited from the coop? Was that what you expected?
5. What are your responsibilities within and to the cooperative?

Seed Systems

6. What does a resilient and equitable seed system mean to you?

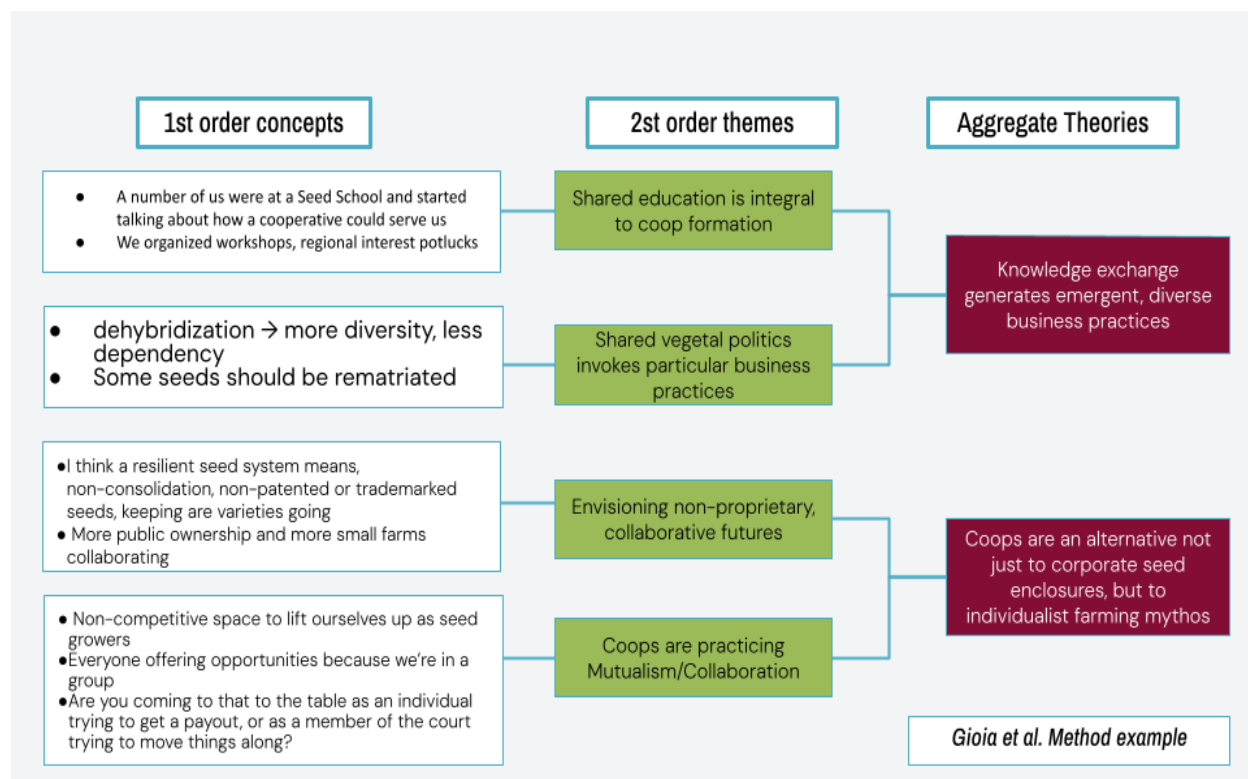
7. What role do you think regional seed companies play in that? What are the obstacles and opportunities for seed coops or collectives that you are involved in to play such a role?

Wrap up

8. What was your favorite seed to grow this year?

9. Do you have any questions for me? How can this thesis support seed cooperatives and seed growers?

APPENDIX D: Gioia Method in Practice



Personal communication, Google Sheets, Coda.ai