



**Investing in
Regenerative Agriculture
Infrastructure Across
Value Chains**



**CROATAN
INSTITUTE**

JULY 2022

Table of Contents

Acknowledgements.....	4
Foreword.....	7
Introduction.....	8
Meat Infrastructure.....	16
Grain Infrastructure.....	32
Vegetable and Fruit Infrastructure.....	38
Tree Nut Infrastructure.....	50
Findings and Recommendations.....	60
Conclusion.....	76



Acknowledgements

The idea for this report was a collaboration between David LeZaks and Paul Rossetti. This project was generously supported by Paul and June Rossetti. We are grateful to those who participated in interviews and provided their stories and input. Their experiences and learnings are the core of this report, which we hope will encourage and empower aligned investors to redirect capital into infrastructure businesses for regenerative agriculture.

CONTRIBUTORS

Paul Rossetti, Sharlene Brown, Christi Electris, Joshua Humphreys, Lauren Manning, and DD Burlin

Adrian Rodrigues

Ali Robinson

Allison Rowland

Andy Larson

Angela Blatt

Bill Davison

Dan Miller

Daniel Ross

David Cooper

Elizabeth Whitlow

Emma Sirois

Eric Jackson

Evan Driscoll

Janice St. Onge

Jarred Maxwell

Jim Kleinschmit

Kathy Webster

Kevin Silverman

Kyle Philipp

Lisa Sebesta

Luca Carnevale

Lucia Sayre

Malini Moraghan

Mark Kleinschmit

Matthew Hoffman

Rebecca Thistlethwaite

Roberto Meza

Russ Conser

Sarah Larson

Sarah Lloyd

Stephen Hohenrieder

Tim Crosby

Tim Ibbotson-Sindelar

Wood Turner

Provenance Capital

RSF Social Finance

Council of Development Finance Agencies (CDFA) fmr.

Food Finance Institute

Council of Development Finance Agencies (CDFA)

Savanna Institute

Steward

DAISA Enterprises, LLC

Mission Driven Finance, Regenerative Harvest Fund

Regenerative Organic Alliance

Healthcare Without Harm

Independent Advisor, formerly Pipeline Foods

Kitchen Table Consultants

Flexible Capital Fund, L3C

Foodshed Investors

Other Half Processing, Tree-Range® Chicken

Bay Area Ranchers' Cooperative (BAR-C)

Soilworks Natural Capital

Regenerative Food Network

Sitari Capital

Hope and Main

Healthcare Without Harm

Torana Group

Other Half Processing

University of Maine

Niche Meat Processor Assistance Network (NMPAN)

East Denver Food Hub

Blue Nest Beef

Food Finance Institute

Wisconsin Food Hub Cooperative

Grounded Capital Partners

Thread Fund

Yale University

Agriculture Capital

Foreword | Paul Rossetti

Recent years have seen rapid innovation in the non-traditional distribution channels that are vital to the viability of regenerative agriculture systems.

COVID-19 certainly super charged the need for these channels. This study is an attempt to give a broad look into the business models and financing structures that have demonstrated success in serving this sector. It attempts to give lessons learned to potential entrants to enable them to avoid known pitfalls and to focus on the experienced key success factors. We hope it serves as a roadmap for others to successfully enter these businesses more aggressively than otherwise possible.

DISCLAIMER

Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the views of the contributors or funders. This document is for informational and educational purposes only. It does not constitute investment, legal, tax, accounting, or other professional advice. Nor does it constitute an endorsement of, an offer to sell, the solicitation of an offer to purchase, or a recommendation to invest in any particular security or investment product. Information contained herein pertaining to specific organizations and investment products has been derived from publicly available sources as well as materials provided directly to Croatan Institute by organizations. Croatan Institute assumes no responsibility for the accuracy or completeness of such information. All investments involve risk—including loss of principal. An investor should consult with an investment professional before making any investment decisions. Any prior investment results provided herein are for illustrative purposes only and are not indicative of future investment results. There can be no guarantee or assurance that investments will perform similarly to past investments described herein. This work is licensed under a Creative Commons Attribution 4.0 International License.



Introduction

A growing number of farmers, ranchers, and business owners are working in their communities to solve the concurrent crises we face today: climate emergencies, biodiversity loss and extinction, a global pandemic, and growing food insecurity, social inequity, and migration.¹

Investors have also shown increasing interest in funding regenerative agricultural enterprises that generate both environmental and social impact, in addition to financial returns. Regenerative systems have the potential to mitigate 170 gigatons of CO₂ equivalents, while generating nearly \$10 trillion of net financial return.² However, there is a gap in small-to-mid scale, mission-aligned infrastructure to reliably process, transport, and market regenerative food products. This middle infrastructure is required for the regenerative industry to scale and succeed. Therefore, this report will demonstrate pathways for investors to successfully support the growth of profitable, regenerative value chains.

Motivation

The power and influence of today's food supply chains have concentrated to a small handful of large companies and landowners.³ This has created agricultural systems and supply chains that favor industrial-scale, conventional commodity production, which extracts profits from producers and workers and places them into the pockets of large agri-business owners. The declining share of profits for farmers, unequal bargaining power, and decreased market access has contributed to a decline in the number of small and midsize operations.⁴ Industrial-scale farming has led to declining farmer populations and rural depopulation.^{4,5}

The industry is starting to wake up to these monopolistic trends as food prices continue to rise, and large companies plead guilty in multi-million-dollar price fixing lawsuits.⁶ Furthermore, industrial supply chains are inflexible and cannot react to demand and market shocks that are increasingly prevalent. Therefore, investments in infrastructure work to differentiate products and develop regenerative markets to build resilient value chains through regionally connected and supported industries.⁴ Customer concerns for food safety, healthier products, animal welfare and the environment, as well as interest in unique, high-quality local foods are driving demand for regenerative products that support regional farm economies.⁷ Infrastructure systems are therefore essential to preserve the integrity of these products by their environmental, nutritional, and social attributes.^{7,8,9}

This work builds on the findings from the Croatan Institute 2019 report, "Soil Wealth: Investing in Regenerative Agriculture Across Asset Classes," and expands to explore opportunities to invest in the infrastructure that bolster market channels for regenerative products. Profitable infrastructure enterprises are growing the regenerative food system, one that prioritizes soil wealth, a term

coined by Croatan Institute to encompass both the soil health and community wealth benefits of investing in rural regenerative agricultural systems. However, these business models are new and relatively untested, with high capital expenditures and thin profit margins, which repels misaligned conventional financing. Infrastructure practitioners have expressed that patient, flexible capital has proven the most aligned for their unique business models. Findings from this report show that businesses and financial mechanisms that collaborate to build strong value chain coordination through mutual benefit and trusted relationships are the most resilient. As Russ Conser of Blue Nest Beef says, "In nature, scale doesn't necessarily come from a few big things, it more often comes from connecting the small and many."¹⁰ This report provides a framework for an investor's approach to working within these regenerative value chains.

Regenerative agriculture

For this report, we define "regenerative agriculture" broadly as "holistic approaches to agricultural systems that work with natural systems to restore, improve, and enhance the biological vitality, carrying capacity, and ecosystem services of farming landscapes."¹² In many cases, regenerative agriculture operations also include social components, such as rural economic development and resilience, animal welfare, equitable wealth generation, and fair wages.^{2,11}

Methods and audience

In this report, we outline the lessons learned for investing in infrastructure that will service and support non-traditional supply networks for regenerative agricultural products. The authors examined over 100 regenerative agriculture infrastructure businesses based in the United States and interviewed 34 capital providers,

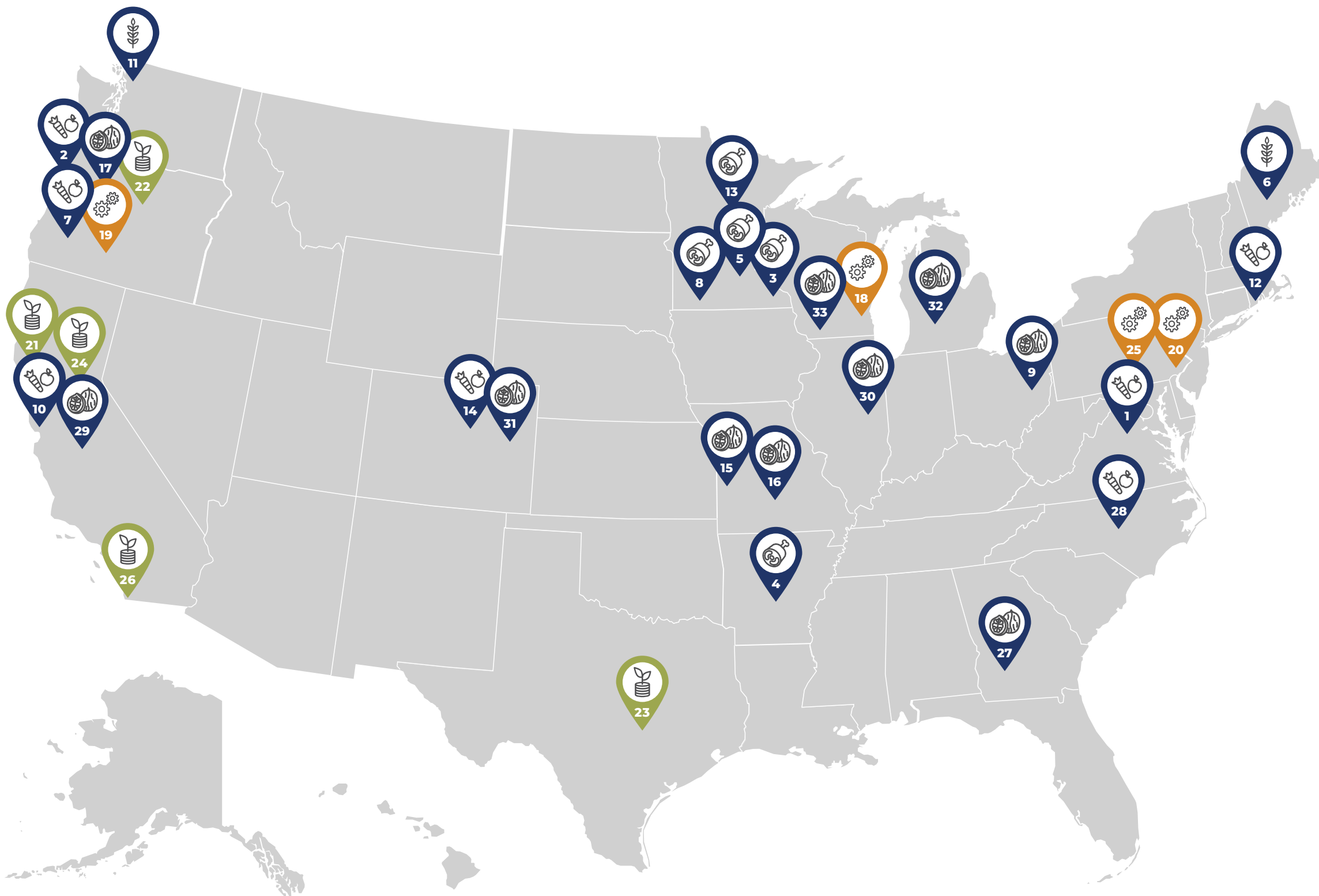
regenerative business owners, and technical assistance practitioners. We have selected over 35 enterprises and organizations to highlight in this report, as shown in Figure 1. These interviews provided insights into the types of financing that have successfully supported the growth of businesses that make up the middle infrastructure of regenerative agriculture. Many of these businesses leveraged a variety of financial and non-financial resources, including integrated capital stacks,ⁱ government grants, credit

enhancements, and technical assistance. Though not exhaustive, these examples show pathways that are successfully building regenerative supply networks and factors that investors should take into consideration when deploying capital in this space. The audience for this report includes public and private investors, the financial community, policy makers, and economic development stakeholders focused on food production, agricultural development, and public health.



ⁱ "Integrated Capital," a phrase coined by RSF Social Finance, is the coordinated use of different forms of financial capital and non-financial resources to support an enterprise that's working to solve complex social and environmental problems.

Businesses, Investors, and Technical Assistance Providers Across The United States Of America



- 1 4P Foods
- 2 Astoria Food Hub
- 3 Blue Nest Beef
- 4 Grass Roots Farmer's Cooperative
- 5 Lorentz Meats
- 6 Maine Grains
- 7 Organically Grown Company
- 8 Tree-Range Chicken
- 9 Route 9 Cooperative
- 10 Veritable Vegetable
- 11 Caimspring Mills
- 12 Hope and Main
- 13 Other Half Processing
- 14 East Denver Food Hub
- 15 Missouri Northern Pecan Growers, LLC
- 16 Hammons Black Walnuts
- 17 Cascade Foods
- 18 Food Finance Institute
- 19 Niche Meat Processor Assistance Network
- 20 Kitchen Table Consultants
- 21 RSF Social Finance
- 22 Steward
- 23 Foodshed Investors
- 24 Cream Co.
- 25 Commonwealth Kitchen
- 26 Mission Driven Finance
- 27 New Communities, Inc.
- 28 Seal the Seasons
- 29 Terviva
- 30 Canopy Farm Management
- 31 Propogate
- 32 Chestnut Growers, Inc.
- 33 Savanna Institute

LEGEND	
ENTITY TYPE	
■ Business	Fruit & Vegetable
■ Technical Assistance	Meat
■ Investor	Tree Nut
	Grain

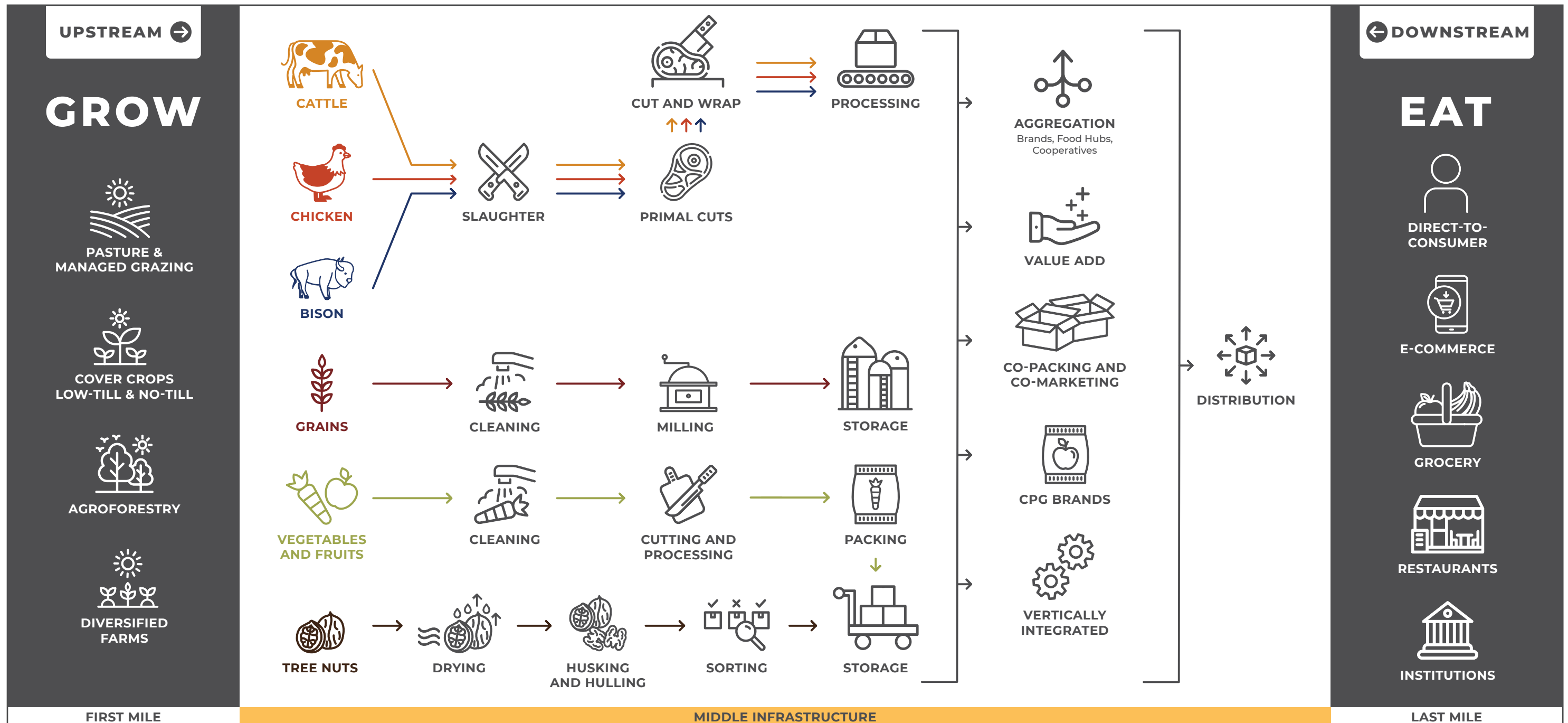
Infrastructure scope

This report focuses specifically on the middle infrastructure of regenerative agriculture, which includes processing, storage, aggregation and distribution, marketing, and retail (direct-to-consumer, business to business, and wholesale)

(see Figure 2). Other sectors of the value chain such as regenerative inputs (seed, compost), marketing, traceability, grocery, institutional procurement, and e-commerce, though important, fall outside of the scope of this research.

This report will review the infrastructure by farm-product type: meat, grain, vegetable and fruit, and tree nut infrastructure. Each section reviews the infrastructure and the lessons learned for regenerative infrastructure and includes

several highlighted business cases. We finish by summarizing our findings and synthesizing recommendations from the infrastructure business owners and investors who provided their expertise.





Meat Infrastructure

Meat processing and meatpacking for regenerative products require skilled labor and strong regional coordination between producers and processors.

The ownership model of the plant (for example, plants organized as an LLC, cooperative, collective, producer or brand-owned entity), the available livestock market, and its capacity will depend on the characteristics of the region.^{12,13} Therefore, investors are more likely to choose successful enterprises when they weigh these variables to make funding decisions and pay close attention to how the borrower considers and plans for these factors. Meat infrastructure enterprises have high capital expenditures and thin profit margins, yet they provide essential services required for regenerative systems. With these factors in mind, some investors have successfully shifted their expectations of meat processing businesses to incorporate values—and mission-aligned benefits while expecting more moderate returns.

Regenerative meat processing: Throughput, services, and labor

Regenerative meat producers mimic natural ecosystems by integrating animals into managed grazing or forestry systems. This way, animals can forage from the land, reducing the use of externally sourced feed, creating animal habitats, reducing land degradation, improving soil health, and providing other ecosystem services.^{14,15}

To bring regeneratively raised meat to market, producers need access to safe and humane processing, packing, labeling, storage, and transportation. Many farmers who sell their product locally must travel hundreds of miles to process their animals due to the lack of right-sized processing infrastructure. The travel puts stress on the animal and can affect meat quality. The supply bottleneck combined with limited processing availability also means that growers must book spots with processors up to a year in advance without knowing whether they will have animals ready for butchering at that time.

In some cases, small and midsize processors can slaughter and process multiple species such as cattle, bison, lamb, poultry, and hogs, as well as provide a number of primal cuts for wholesale and value-add retail products such as smoked meats and sausage. However, not all processors can provide this wide array of services. The Niche Meat Processor Assistance Network (NMPAN) summarizes the challenges of small meat processing:

We often hear from farmers that processors are (1) too few in number, (2) too far away, and (3) too busy when producers need them. But processors tell us that farmers (1) don't bring them enough business, year-round, to hire (and keep) skilled workers, (2) don't come at their scheduled time or bring fewer or different animals than planned, and (3) don't pick up finished product on time, using up valuable cooler space. Both are right: these are big challenges. Why don't we have more processors? How can processors be profitable...or simply break even?¹³

NMPAN describes meat processing as high risk with thin profit margins. Therefore, throughput, revenue, skilled labor, and sustained demand for services are essential. The more sustained throughput, "the more services a processor can provide".¹³



OPPORTUNITIES AND LESSONS LEARNED

Based on the interviews with regenerative livestock companies, below are some of the lessons learned where a balance was struck between serving the mission of being a regenerative business while still maintaining profitability and delivering financial success. We also provide case studies of four regenerative meat companies in Minnesota that highlight the benefits of a regionally coordinated value chain.

As stated above, alignment between upstream supply, processing capacity, and downstream demand is a limiting factor in growing regional meat supply networks. Regenerative farmers cannot grow when processing capacity is limited, but processors cannot expand their capacity without steady throughput and revenue. A 2013 report from the USDA analyzed successful local meat processing companies and found that profitable businesses shifted their relationships between producers and processors from ones of independent transactions based on convenience, to “long-term interdependence based on commitment”.¹²

These relationships form the basis of the reliable throughput and volume that is essential for the processor’s profitability. Furthermore, if farmers want processors to increase their capacity or services, they can provide the capital for the processors through contracts, cash, equity, subordinated debt, and purchase of equipment to lease to the processor.¹² In exchange, the processor can provide additional services to bolster the farmer’s income.

Capital for well-planned new and existing meat processing plants will help reduce the bottleneck and bolster demand for regeneratively raised animal products. Processing businesses have thin profit margins, which requires a robust planning phase. As one interviewee said, “Starting a meat processing facility is always a multi-million-dollar affair, there’s no work around. [Borrowers] should be able to pull together a financial stack. If they don’t have the planning skills to do that, they have no business starting that facility, period.” This also demonstrates why strategic partnerships and technical assistance are crucial for the success of businesses and return of capital.



Cream Co. is the largest vertically integrated distributor and processor for sustainable and regenerative ranches on the West Coast. They are working to build decentralized supply chains by providing critical processing infrastructure to more than 35 regenerative farms and the only aligned, USDA-inspected butchery in the Bay Area.

THE CREAM CO. BUSINESS MODEL

- Best-in-class 15,000 sq. ft. USDA-inspected processing and butchery
- Consumer brand supported by multichannel distribution, direct-to-consumer retailer, and business-to-business wholesaler
- Digital infrastructure systems and distribution logistics built to scale
- Restaurant-quality products from skilled artisan butchers and state-of-the art dry aging facility
- Co-packing and value-added products provide higher margins to buffer lower processing margins, which also facilitates growth of online retail sales
- Radical transparency as a key differentiating factor
- Superior nutritional quality, flavor, animal welfare and environmental stewardship practices
- Increased premiums enhance producer loyalty, while enhanced customer knowledge fosters customer loyalty
- Innovator and leader in sustainability

CREAM CO. OUTCOMES AND IMPACT

- Farmers earn up to 53 percent on average more than conventional pricing
- Processing infrastructure for more than 35 regenerative farms on the west coast
- 53 percent revenue growth in 2021

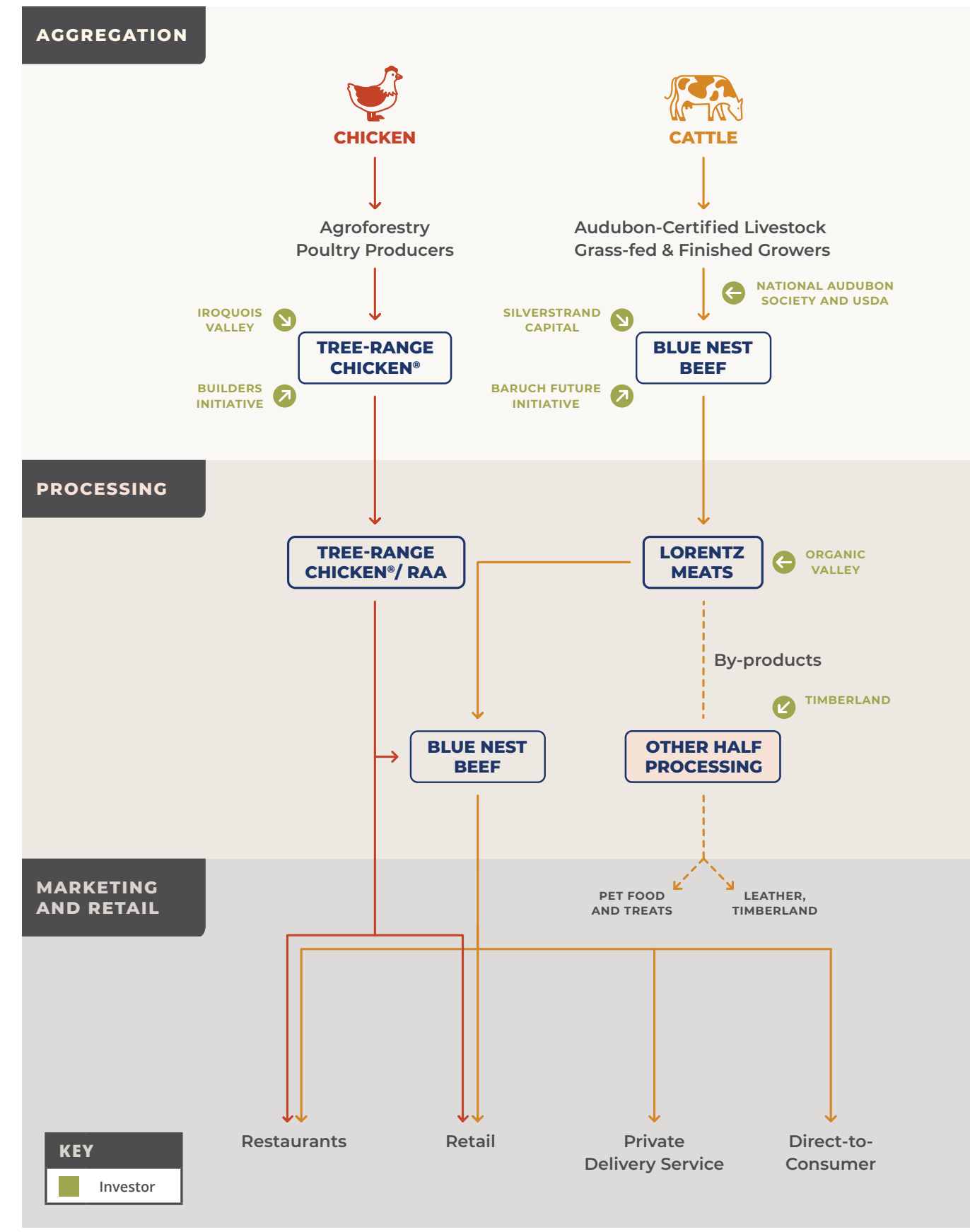
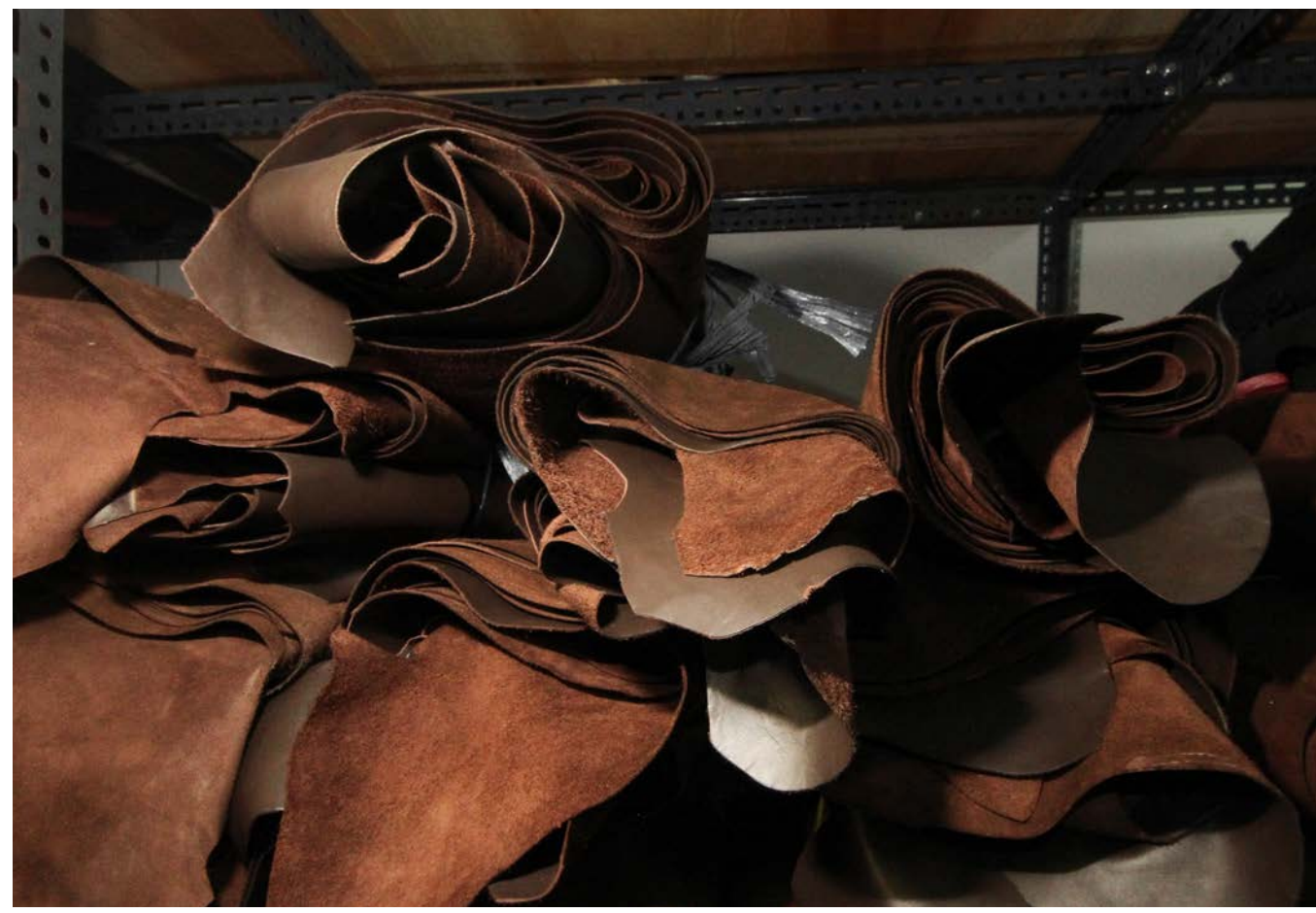
Land and zoning support from public and government sources has worked to eliminate one source of burdensome debt for land for meat infrastructure businesses. As Mike Lorentz of Lorentz Meats noted in a webinar with Cienega Capital, there are enough industrial parks and zones that can cover the cost of the land for a processing plant.¹⁶ Therefore, communities and towns have made the land available for these infrastructure assets because of the recognized value of meat processing as both a driver of economic development and as a critical service for the agricultural community. For example, Island Grown Farmers Cooperative in Burlington, Washington, worked with a port taxing district that had land on the coast for their processing plant. They were able to acquire a 50-year ground lease with a \$60,000 grant and a \$180,000 low-interest loan from the Community Economic Revitalization Board and state Department of Commerce, which helped pay for the cost of ground work, sewage, water, electricity, and good, living wage jobs.¹⁷

To grow these supply networks, some interviewees also noted that capital could help develop high quality grass-fed finishing and strong cold chain distribution systems. Grass-fed finishing farms that provide high quality pasture for cattle create enhanced environmental quality and consistency of the meat and reduce the reliance on feedlots. Furthermore, enhanced cold chain systems are essential to transport products to markets safely and maintain traceability of the products. These upstream and downstream sectors of the supply chain bolster both the supply and distribution of regeneratively-raised meats. Additional deployment of capital in this space can help remove critical bottlenecks, increase market reach, and act as a driver to increase business profitability while increasing the throughput of the systems. In addition, collaboration and partnerships throughout the supply chain are required to enhance system-wide resilience while improving unit economics.

Meat Value Chain

Lorentz Meats, Blue Nest Beef, Tree-Range®, Other Half Processing





The connections between regenerative meat production and processing in the Midwest demonstrate the mutual benefit of collaborative infrastructure and the importance of the development of full and interconnected ecosystems that elevate the profitability and capacity of regenerative enterprises. Below we will outline some of the business models and capital mechanisms that connect four regenerative meat infrastructure businesses: Lorentz Meats, Blue Nest Beef, Tree-Range® Chicken, and Other Half Processing.





Lorentz Meats

Cannon Falls, MN

-  **INFRASTRUCTURE TYPE**
Processing
-  **YEAR ESTABLISHED**
2000
-  **OWNERSHIP MODEL**
Privately held company
-  **PRODUCTS**
Cattle, Bison

Lorentz Meats, located in Cannon Falls, Minnesota, is a USDA-inspected processing facility that offers slaughter, packaging, and value-added production (portion cutting, sausages, and cured meats). They operate on a fee-for-service basis for beef and bison brands and independent farmers.¹² According to the 2013 Lorentz Meats case study by the USDA, three core customers make up about 65 percent of their business volume.¹² Whereas, 200 local direct marketers make up about 20 percent, and a handful of smaller brands and co-pack sausage customers make up the rest of their volume.¹²

The Lorentz Meats business model is a prime example of successful meat processing that

has used strong partnerships to stand up their business and reach the ideal throughput volume to maintain profitability.

CEO Mike Lorentz says, "Our major customers, who sell fresh meat every week, year-round, pay for the infrastructure so we can provide a professionally done service to the small, local producers with five beef a year."¹⁸ However, this was not always the case. In 2000, Lorentz built a new USDA-inspected facility, which cost \$2 million. They started with \$500,000 in equipment and \$100,000 operating capital and "lost more than \$1 million in three years."¹² According to one of the owners, "We went into this with a 'build it and they will come' mentality and that was a terrible idea... You need key customers that will be there every week with real volume."¹² Three key customers—Organic Valley/CROPP, High Plains Bison, and Thousand Hills Cattle Company—and the growth of their businesses finally spurred the positive cash flow for Lorentz Meats in 2005.¹² These companies also deliver to their customers weekly, which for Lorentz is "better than any contract...[because] market pressure is stronger than legal pressure."¹²

Customers who seek additional services have also invested in Lorentz to expand their capacity to meet the unique needs of the grower. For example, Organic Valley/CROPP invested significantly in a stock purchase, which helped finance an expansion of the plant that Organic Valley/CROPP needed

to grow their meat business.¹² One key customer also financed a \$150,000 bowl chopper (for finely textured sausage making like hot dogs) to lease to Lorentz because it was the only customer that needed it at the time and Lorentz did not want to tie up additional credit.¹²

Looking forward, Lorentz Meats is considering how to grow and expand their services while remaining small enough to not outgrow their customers. Increased efficiency reduces their flexibility to offer niche services for smaller producers. For example, more efficient and specialized machines that increase profits but require 10,000 pounds of beef,

would not serve their customers who are not able to supply that amount at once.¹² There is a sweet spot where a facility is large enough to mitigate risk, comply with rules and safety, yet still support local farmers "who are individually small-scale but significant as a whole."¹²

Another key customer of Lorentz Meats is Blue Nest Beef, a regenerative meat brand and aggregator with facilities about 45 miles away in Rochester, Minnesota.



Photo courtesy of Lorentz Meats.



Photo courtesy of Blue Nest Beef.

Blue Nest Beef

Rochester, MN



INFRASTRUCTURE TYPE

Aggregation & Distribution, Marketing & Retail



YEAR ESTABLISHED

2019



OWNERSHIP MODEL

Privately-owned



PRODUCTS

Beef, Poultry

Blue Nest Beef seeks to scale regenerative animal agriculture with a direct-to-consumer, grass-fed meat subscription delivery service. Blue Nest Beef built their subscription model by partnering with the Audubon Society, which provided a customer base of 5 million members who were receptive to buying meat from bird-friendly ranches.¹⁹ Blue Nest Beef sources animals from Audubon-certified growers and grass-finishers, such as Leone Valley Ranch in South Dakota and Fiddleback Ranch in Wyoming. Their products are 100 percent grass-fed and grass-finished, with no grains in their diet, no time in a feedlot, no confinement, and no antibiotics or growth hormones. They pay a roughly 20 percent premium for the grass-fed and finished cattle from US ranches adhering to both Audubon and Blue Nest Beef standards.²⁰

Bird species are declining in the US due to habitat loss and destructive agricultural practices. Yet, Audubon research found that proper ranch management increased bird populations by approximately 33 percent.²⁰ Birds are a powerful indicator of healthy ecosystems. If the cattle are not left to overgraze, they leave longer grass stems behind that provide cover and safe haven for birds to nest and raise their young.²⁰

Since Blue Nest Beef launched in 2019, customers can order products on their website, which are fulfilled by Blue Nest Beef's warehouses in Minnesota and Georgia. Over time, they increased their offerings from two to nine selections of boxes, ranging from \$99 to \$235 and with a gross margin of about 20 percent.²⁰ Each box contains frozen ingredients and requires thermal insulation and dry ice. Blue Nest also offers a 5 percent discount for subscription orders. They offer a ready-to-eat shelf stable grass-fed snack stick, BoboLinks™.

The key to profitability for Blue Nest is to achieve efficiencies of scale across their supply and value chain.²⁰ Scale also provides operational efficiencies to make the business more resilient. For example, Blue Nest CEO Russ Conser says, "it's inefficient to throw a bunch of dry ice in a box to keep it cold in the back of a delivery truck when everything else in that truck is warm. I can't solve that problem in the distribution chain until I have hundreds of boxes being delivered daily. Then I can start using refrigerated trucks to move product into

distribution facilities located closer to consumers and refrigerated trucks to go the final mile."²⁰ Blue Nest already has the rancher base to meet an increase in demand and scale.²⁰

Between 2019 to 2021, Blue Nest Beef shipped over 3,000 orders to customers in all lower 48 states with 70 percent of customers making repeat purchases. Just over \$1 million was invested for supply chain development and digital infrastructure.²⁰ Russ Conser, states that the business has not used any venture capital because it was not a good fit. However, they have secured funding from several family offices, such as Silverstrand Capital and Baruch Future Ventures, that share the mission focus and are open to more flexible terms.

In 2021, Blue Nest Beef introduced its BoboLinks™ branded shelf-stable beef snack sticks to significantly scale opportunities on both the supply and demand side. On the supply side, although

initially developed to enable better whole-animal utilization, the product now also includes animals that would not otherwise meet quality standards for premium plated products opening possibilities for more regenerative ranches to participate in the program. On the demand side, the unique flavor of the naturally fermented product and lower unit price has positioned the product as a healthy and convenient snack for more consumers in more places. In addition, the cheaper, easier, and non-refrigerated distribution through multiple channels further improves both margins and scalability.

Blue Nest Beef recently partnered with the regenerative poultry brand Tree-Range® Chicken to offer their products on their platform and delivery service.



Photo courtesy of Blue Nest Beef.



Photo courtesy of Tree Range® Chicken.

Tree-Range® Chicken

Rochester, MN



INFRASTRUCTURE TYPE

Aggregation & Distribution,
Marketing & Retail



YEAR ESTABLISHED

2019



OWNERSHIP MODEL

Privately-owned



PRODUCTS

Poultry

Tree-Range® Chicken is a regenerative brand of chicken owned by Regeneration Farms LLC, headquartered in the Northfield area of Minnesota. Co-founder and agronomist Reginaldo Haslett-Marroquin states:

We're building industry-level alliances to support regenerative poultry-centered agriculture...

Our 1.5 to 3-acre production units incorporate a canopy of vertical native perennial species like hazelnuts, as well as a lower layer of understory crops. This protects and shades the chickens, who move freely throughout this Tree-Range® system, continually eating bugs, working the soil, and fertilizing.²¹

Tree-Range® buys chickens from family farmers trained in the regenerative poultry protocol and sells them into the market as the for-profit arm of a broader ecosystem of regenerative poultry producers and technical support organizations that is anchored by the Regenerative Agricultural Alliance (RAA).²² In 2020, five new producers started working with Tree-Range®, three of whom are immigrants

from Mexico and Central America. RAA has also partnered with a soon-to-be organic feed mill and as of 2022, operates a USDA inspected, organic certified processing facility in Stacyville, Iowa that can handle up to one million birds.

Financing from Compeer Financial's Emerging Market program helped Regeneration Farms build out the first farm and start Tree-Range® Chicken production. This fund helps new farms that market direct to consumer or value-added agriculture to obtain financing despite lacking credit or farm financial records.²³ Reginaldo & Amy Haslett-Marroquin, in partnership with Iroquois Valley Farmland REIT, have also successfully financed the purchase of 75 acres in Rice County, MN to establish Salvatierra Farm.²⁴ The Builders Initiative also awarded a grant to RAA. Most recently, RAA partnered with the Minnesota state legislature to launch a regionally branded regenerative agriculture development park out of Albert Lea, MN. They say:

This park will serve as a processing and sourcing hub for the poultry program to scale up and feed 10 million broiler chickens and 500 million eggs. Along with that will be the capacity to aggregate and process value-added agricultural products from both poultry and tree products like hazelnuts and elderberries. Other services like farm lending, banking, technical assistance, and business development would also be housed in this park, leading to a full suite of support infrastructure for long-term farm viability.²⁵

Tree-Range® Chicken is sold in a growing number of Twin Cities grocery cooperatives, local colleges, and restaurants, and is available nationally through the Blue Nest Beef network. Tree-Range® intends to expand into egg production in 2023 and plans to sell one million regeneratively raised chickens annually by 2026.

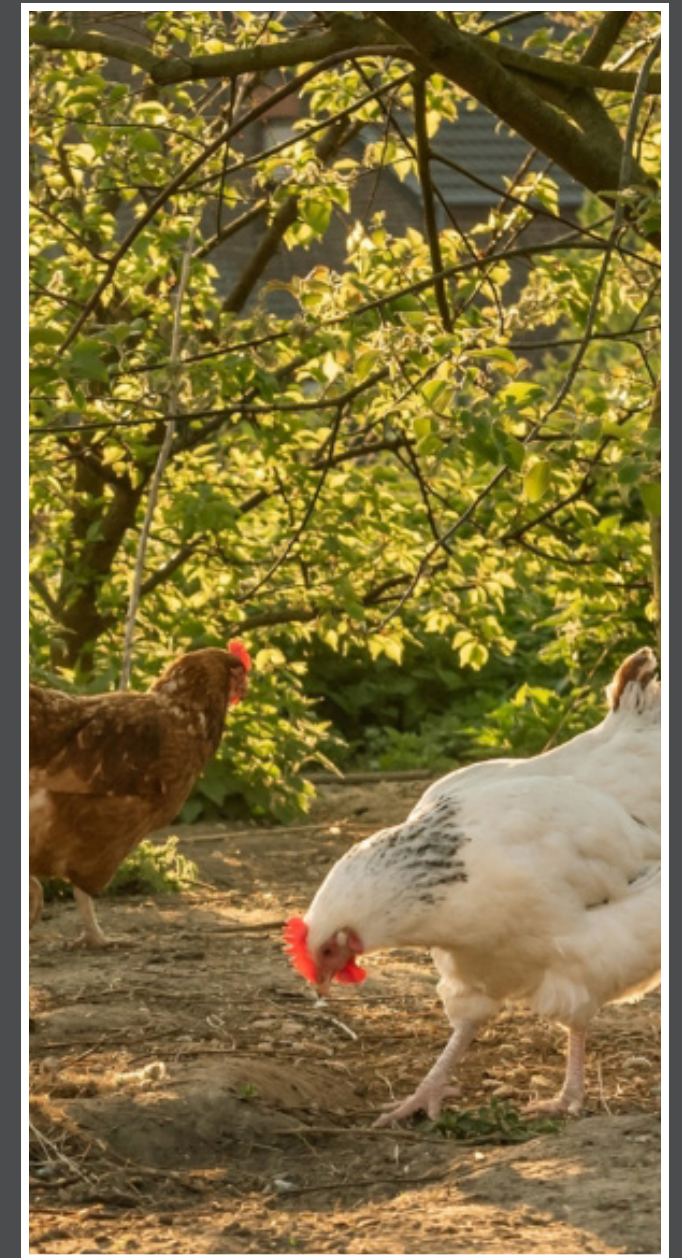


Photo courtesy of Tree Range® Chicken.





Photo courtesy of Other Half Processing.



LEATHER
HIDES



PET
FOOD

Other Half Processing

Minneapolis, MN



INFRASTRUCTURE TYPE
Processing



YEAR ESTABLISHED
2017



OWNERSHIP MODEL
Privately-owned Special
Benefit Corporation (SBC)



PRODUCTS
Leather Hides, Pet Food

A Minnesota Specific Benefit Corporation (SBC), Other Half Processing SBC (OHP) buys and sells hides and the other traceable byproducts that come from verified regeneratively raised livestock. OHP was founded by brothers Jim and Mark Kleinschmit. Jim is also a co-founder of Regeneration Farms LLC, which works with family farmers to produce and sell Tree-Range® chicken and other regeneratively produced foods.

Other Half Processing supports the expansion of regenerative agricultural systems and value chains, doing business in a way that respects the animals and benefits the people that raise them. Currently focused on hides/leather and ingredients for the pet food and treat industries, OHP is able to verify,

trace and source ethical and high-value byproducts exclusively from sustainably raised livestock in partnership with regenerative farmers/ranchers, meat companies, and meat and hide processors. OHP got its start working with Minnesota-based Lorentz Meats and Thousand Hills Cattle Company, but has rapidly grown supply partnerships across the country, buying close to 25,000 hides in 2021.

Fashion brand Timberland is partnering with Other Half Processing to build a regenerative leather supply chain. Timberland is sourcing traceable hides from OHP for select footwear collections²⁶ and as part of their corporate goals of a 100 percent regenerative leather supply chain by 2030.²⁷ Timberland also partnered with Savory Institute to co-fund their ecological outcome verification (EOV) programs on Thousand Hills farms and ranches.²⁸ This provided funding to strengthen the partnership with Other Half and ensure the necessary verification and impact data collection needed for the regenerative leather supply claims. Other Half Processing has received a few key Minnesota state grants and funding from their co-founders.²⁹ Other Half Processing is currently working on strategies to further the development of sector infrastructure and aggregation.²⁹

Meat Value Chain

Conclusion

The interconnectedness of these meat infrastructure businesses in the Midwest (including multiple species and the use of meat byproducts) shows the need for, and benefits of, cooperation and partnerships. These businesses have highly successful business models and have obtained different forms of integrated capital, as illustrated in the case studies. Not only do these businesses support local producers, but the producers and business partnerships create scale, resilience, and support growth while deriving value from full carcass utilization. Regional supply networks are highly interdependent entities and must be managed as such.



Grain Infrastructure

There is an opportunity for investment in regenerative and regionalized grain production in the United States to create a market and value chain for the diverse set of rotational crops that accompany no-till and organic production.³⁰

Due to the consolidation of the industrial, commodity-based grain system, regions have lost local and scale-appropriate milling, malting, and other processing infrastructure used for small grains such as barley, oats, rye, wheat, amaranth, sorghum, and millet.^{30,31} Further, transitioning from a system that largely produces grains for animal production, there is missing knowledge on how to viably grow grains for human consumption. Producers need technical assistance to learn to grow human-grade grain varieties as well as access the equipment and facilities needed to clean, dry, and store grain.³²

Growing small grains regeneratively also involves understanding how to grow the accompanying set of grains, legumes, and oilseed that are grown in rotation to increase yields and profitability by breaking pest and weed cycles, fixing nitrogen in soil, and enhancing overall soil health and microbial life. For example, the Shepherd's Grain in the Pacific Northwest has identified up to thirty separate crops that can function in rotation with no-till or conservation tillage wheat.³⁰ However, farmers need viable offtake markets for these crops.

Once grain is harvested, it needs to be cleaned, dried, stored, and, depending on the grain, dehulled. Increasingly, many of these activities are happening on-farm due to the lack of local access to this type of infrastructure.³¹ Some grain millers and processors are adding cleaning and storage equipment to their facilities as they recognize the need for these services.³¹ Other models of sharing grain cleaning and storage equipment could be stationed at a centrally located farm and be made available to small farms who are not able to make the investment in their own on-farm infrastructure.³³ These shared facilities could be either independently owned using a fee for service model or cooperatively owned by the farmers using the equipment.

Once cleaned, whole grains can be sold directly to consumers and retailers or moved further along the value chain to process into flour, malt, or other grain-based goods. These processes can include milling, flaking, rolling, extruding, sprouting, puffing, cracking, and malting.³¹ Some farms, and even bakeries and distilleries, are purchasing their own small-scale milling infrastructure to sell or use directly. Other farmers rely on regional processors, where stone and hammer mills are more commonly used.³¹

OPPORTUNITIES AND LESSONS LEARNED

With increasing demand for local grains, patient and flexible capital can profitably support the expansion of regional infrastructure. Millers and processors make up-front investments in grain from farmers at the end of the growing season and spend the subsequent year processing and packaging the value-added product for sale. Patient operating capital is needed to alleviate the lumpy cash flow projections regional grain mills face and provide needed capital when traditional banks fall short because of their risk tolerance. In the wake of the COVID-19 pandemic and the increase in demand for regional grains, non-control equity and debt financing with credit enhancements can also be used to support grain infrastructure businesses as they grow.

In addition to investing in infrastructure, regional grain systems can benefit from improved access to technical assistance and education, marketing support, and policy changes. For example, the New York City Greenmarket, a network of producer-only, open-air markets across the city, instituted a rule requiring bakers to use at least 15 percent locally grown ingredients. This incentivizes the purchase and use of regionally grown grains.³³ Other purchasing contracts can support farmers and millers with a protected guarantee to invest in the necessary infrastructure, while reducing the financial risk. Because grain quality is tied to variabilities in weather, growers can also benefit from access to secondary markets that can tolerate variations in grain quality if not up to par for primary markets. For example, temperature and moisture variability can produce different

protein content in the same variety of grain, which can be problematic for bakers who bake in large quantities or lack the understanding of how to use these types of grains. Furthermore, the USDA's Farm Storage Facility Loan Program, which currently offers low interest loans to farmers and producers to purchase grain storage silos, could be extended to mills and processing facilities that also require this type of infrastructure.

Investing in regional, regenerative grain value chains can enhance regional food security, improve environmental outcomes including water quality improvements, and ultimately ensure the financial viability of diversified agricultural producers.³¹





Photo courtesy of Maine Grains.

Maine Grains

Skowhegan, ME



INFRASTRUCTURE TYPE
Processing



YEAR ESTABLISHED
2012



OWNERSHIP MODEL
Privately-owned



PRODUCTS
Heritage Grains
and Legumes

In 2007, when the Somerset County Jail in Skowhegan went up for sale, Amber Lambke and Michael Scholz saw an opportunity to open Maine Grains to meet the growing demand for locally-produced organic flours while simultaneously revitalizing grain-related business in the region. As the co-founders of the annual Kneading Conference, Lambke and Scholz were already in deep conversations and building networks with small-scale grain growers, bread bakers, millers, and wood-fired oven builders in the region.

By 2009, Lambke and Scholz had raised \$1.6 million to purchase the facility and to build the Somerset Grist Mill, a portion of which came from economic development funding. They worked with the Somerset Economic Development Corporation, a pioneering fiscal intermediary and fiscal sponsor, to raise \$700,000 in grant funding. They were also able to secure a Community Development Block Grant, a mortgage from Skowhegan Savings' Bank, and \$350,000 in Slow Money loans that offered below market interest rates while allowing Maine Grains to accrue interest for five years before repayment would begin.^{34,35}

The mill has helped the town of Skowhegan take center stage in a global renaissance to relocalize grain economies. Beyond the mill, the facility has become a vibrant food hub for other local businesses and a thriving community gathering place.³⁶

By 2016, the company had ten employees and doubled sales from the previous year. At the time, they only had one set of cleaning equipment, which limited production. To meet expected growth, they knew they needed to invest in additional machines. Coastal Enterprises, Inc. (CEI) provided both a loan and an investment from their Catalyst Fund, which makes early-stage equity investments in food system businesses that support local agriculture and fill critical gaps in the local supply chains in the Northeast. In addition, Chandler Jones, a principal with CEI's venture capital subsidiary, CEI Ventures, was appointed to Maine Grain's board of directors as an observer and advisor.³⁷

Maine Grains has continued to grow and seek out opportunities to build the regional grain economy in Maine and New England. At the end of 2021, the company had 19 employees and annual sales of \$2.3 million. They have established wholesale

routes to bakeries, established sales at over 175 Hannaford supermarkets, and secured markets in southern New England.³⁸

Maine Grains has grown their farm network to 45 farms located throughout Maine and the Northeast, including Liberation Farms, which is part of the Somali Bantu Community Association in Auburn, Maine. There are over 200 Somali Bantu farmers growing flint corn by hand using traditional cropping systems. Excess corn is sold to Maine Grains for a special Liberation Farms Cornmeal product.³⁸ Maine Grains also provides markets for the full suite of crops in regenerative grain rotations, including a variety of legumes they offer through their product line appropriately named after this traditional practice, "Crop Rotation."



Revitalizing Maine's grain economy has helped provide focus for economic and community development at the grassroots level in Skowhegan at this time in history. We are improving an economic cluster and creating new opportunities from milling and baking to grain farming, malting, and brewing."³⁶

AMBER LAMBKE
Maine Grains President & Co-Founder



Funding entrepreneurs is risky because buying equipment is expensive. Renovating buildings, or building buildings is expensive. Even when you are trying to leverage your equipment, the collateralization of that equipment sometimes doesn't help. Other lenders and investors want to see a model of profitability before they will back you. So sometimes that has prevented us from getting loans from local lenders."³⁷

AMBER LAMBKE
Maine Grains President & Co-Founder



Vegetable & Fruit Infrastructure

Vegetables and fruits require tools and infrastructure to clean, cut, store, pack, and ship the products to buyers and consumers in ways that protect the differentiated attributes of the regenerative products.

Other infrastructure includes manufacturing for consumer packaged goods (CPG), canning, drying, fermenting, juicing, and freezing. Buyers of fresh and processed vegetables and fruits can include wholesale buyers, food hubs and aggregators, retail stores and grocery, as well as direct-to-consumer. When selecting farmers to purchase from, wholesale and retail buyers may weigh factors such as quality, farmer access to cold storage, packaging and delivery, food safety, and liability insurance.³⁹ Small and midsize farmers compete with larger farms for lower prices and greater resources to sell their product to aggregators and larger markets. Meanwhile, direct to consumer markets (CSAs, farmers markets, online sales) can be saturated, capital intensive, time consuming for the grower, and require additional marketing skills. Therefore, investments in fruit and vegetable infrastructure that support smaller regenerative growers are essential to support the flow of healthy, nutritious, and affordable goods to these alternative markets.

Fruit and vegetable growers are under increased pressure to compete with international prices, due to low import tariffs, increased production costs, and heightened global competition for low-cost or subsidized products.^{40,41} Additionally, the harvest of fresh fruits and vegetables is labor intensive with farm labor accounting for nearly 42 percent of the variable expenses for US fruit and vegetable farms.⁴¹ Therefore, regenerative producers experience challenges capturing price premiums for their products. Reduced fruit and vegetable production in certain regions has impacted the availability of domestically produced regenerative products and regional processing. Processors are also constrained by the seasonality of fresh produce, much like other agricultural products, so processors who invest in equipment must diversify the product flow to reduce downtime to ensure profitability. However, this can be challenging as different crops have specific equipment requirements.

OPPORTUNITIES AND LESSONS LEARNED

Fruit and Vegetable businesses are in need of enhanced infrastructure investment to reach wider and institutional markets, capture regenerative premiums, and transport products regionally and safely.

The structure of today's market is one that is highly consolidated, with states like California dominating the production of many crops.⁴² Consequently, the infrastructure needed to move these products to market is also highly geographically focused. While the local food movement has made some inroads recently, diversifying production is a hedge not only to protect against changes in climate, but also to diversify income. Farmers, unless doing small-scale direct marketing or farmers markets, have little opportunities to access markets without the necessary infrastructure elements. Patient and flexible capital stacks support these businesses in their social missions to enhance access and affordability of healthy produce. Developing shared ownership structures for processing, manufacturing, marketing and/or distribution helps shift producers from price takers to price makers, which improves farmers' profitability. Creating a variety of direct to consumer, restaurant, and institutional markets for diversified distribution channels will improve resiliency of the system.⁴³

There are a range of opportunities to invest in infrastructure enterprises for regenerative vegetables and fruits that may include:

- Cold storage
- Processing facilities to clean and cut raw products
- Commercial and shared kitchens and commissary space
- Manufacturing and co-packing facilities for value-add products
- Logistics coordination, distribution, and shipment
- Mobile markets
- Food hubs
- E-commerce and delivery services⁴⁴



FROZEN
VEGGIESFROZEN
FRUITS

Seal the Seasons

Chapel Hill, NC



INFRASTRUCTURE TYPE

Aggregation & Distribution,
Marketing & Retail



YEAR ESTABLISHED

2015



OWNERSHIP MODEL

Privately-owned
B Corporation



PRODUCTS

Frozen Vegetables
and Fruits

Seal the Seasons was designed and incubated at the University of North Carolina at Chapel Hill and formally launched in 2015. The company's mission is to make local food available year-round by purchasing a variety of fruits and vegetables, freezing them, and distributing through direct-to-consumer, retail, and institutional market channels.⁴⁵

CAPITAL

- Seal the Seasons started with \$80,000 in proceeds from business competition prizes, which they used to start freezing products in a shared commissary kitchen.⁴⁶
- A \$50,000 loan helped them to secure office space as the company expanded.⁴⁷
- The company also secured \$100,000 in peer-to-peer loans through Slow Money NC and a \$150,000 loan from Self-Help Credit Union.⁴⁷
- Seal the Seasons, which has been certified as a B-Corp since 2017,⁴⁸ has successfully raised over \$10 million from grants, venture capital, and community debt providers.⁴⁹
- Seal the Seasons has also secured funding from The Living Fund, Venture South, Semillero Ventures, Solidarity Capital Group, and Village Capital.⁵⁰

BUSINESS MODEL

- In the early days, the company processed the majority of their products at their own processing facility in Hillsborough, NC and grew to using a co-packer in Faison, NC.⁵¹ More recently, they have worked directly with members of their growing community to freeze and package the product.⁴⁹

- Expansion to new geographies enhances the resilience of their supply chains and expands their grower network. They work with producers in the Northeast, Mid-Atlantic, Southeast, Midwest, Pacific Northwest, and Pacific Southwest.⁴⁹ As of 2021, the company supports more than 70 farms, offers more than 65 separate products and uses more than 12 freezing and packing sites across the US.⁵²
- Multi-channel distribution (direct-to-consumer, grocery retail, and institutions) supports steady revenue.
- Seal the Seasons leads in innovation and has participated in several food oriented incubators and accelerators, such as FutureFoodCo and the Chobani Food Incubator.^{53,54}

Seal the Seasons works to increase access to nutritious and responsibly grown fruits and vegetables. CEO Patrick Mateer told Produce Processing that they are going further to increase food security to underserved and disadvantaged communities. He says, "If you're in 1,000 grocery stores, you can easily support five or ten corner stores with a lower price point. It's a mission-oriented thing to make this food accessible. As we continue to grow on the for-profit side, we'll continue to add a small number of reduced-price locations—but not in the same markets as our grocery partners. This is really a food insecurity mission."⁴⁶ This demonstrates that mission-oriented fresh fruit and vegetable businesses can maintain profits and support their communities at the same time.



Photo courtesy of Seal the Seasons.

Vegetable and Fruit Value Chain

Food Hubs

A food hub serves as an integral piece of the middle infrastructure by aggregating, storing, and distributing fresh produce to consumers and retailers. Food hubs can also source products from regional producers in order to satisfy (and grow) wholesale, retail, and institutional demand.⁴⁴ Though many food hubs focus on the aggregation of fresh vegetables, fruits, greens, and storage crops, they also may source meat, dairy, and other products. Small and midscale growers of these products are often unable to meet the volume or processing demands of larger buyers on their own. In this way, food hubs support local and regenerative producers by providing consistent access to larger markets through aggregation.

“

Food hub or good food work is not just about local food or replacing an exploitative, unequal system with a smaller, local replicate. This work is about shifting power... One of the most important ways that we can create an equitable food hub system based on racial equity is to invest in cooperative ownership and collective purchasing models, specifically in and led by communities of color.”⁵⁵

DARA COOPER

Reframing Food Hubs: Food Hubs, Racial Equity, and Self-Determination in the South

It is important to note that though the attention towards food hubs has increased in recent decades, the idea is nothing new.⁵⁵ In a 2018 report, Dara Cooper describes how for decades, communities of color have developed food hubs to distribute products from local producers to markets and consumers in order to enhance food sovereignty and self-determination.

According to Cooper, the work of food hubs goes beyond meeting market demands, “it is rooted in countering dispossession, building power, reclaiming culture, improving health conditions, growing economic opportunities, and dreaming and reclaiming alternate realities.”⁵⁵ The report also highlights long standing Black-owned food hubs and cooperatives such as Indian Springs Farmers Cooperative Association, Mississippi Association of Cooperatives, New Communities Inc., and the Southern Organic Female Farmers Association. Cooper identified access to capital and resources as a key challenge for farmers and entrepreneurs of color in this space.

Food hubs are showing impressive sales and new job creation and retention.⁴⁴ Many also work toward social goals as a core piece of their mission, like food access, racial equity, and support to local producers. A 2015 report by Farm Credit East, the Wallace Center, and other community partners found that food hubs are low margin businesses and that “food hub profitability is the springboard to achieving the broader mission-related goals.”⁵⁶

The 2015 report, Counting Values, found common factors that contribute to food hub success and profitability:

- The typical food hub operates close to the break-even level. The highest performing 25 percent reported an average 4 percent profit, and “the most profitable food hubs were larger, older, for-profit operations.”
- The gross margin of the typical food hub in the study was 14.5 percent.
- Efficiencies were key for the top performing food hubs, for example lower cost of goods sold and improved labor productivity.
- The top food hubs spent 39 percent more on labor (cost per worker equivalent) and their workers outperformed the others by 56 percent (sales per worker equivalent).
- Food hubs should make sure product markups capture the value that the food hub adds “every step of the way.” Hubs should focus on markups before pursuing added volume.
- For long-term sustainability, maintain a strong financial position with “slow manageable growth”.⁵⁶

Below are three examples of new and beginning food hubs, some insights into their business models and social impact, and some of the capital employed to build these enterprises.

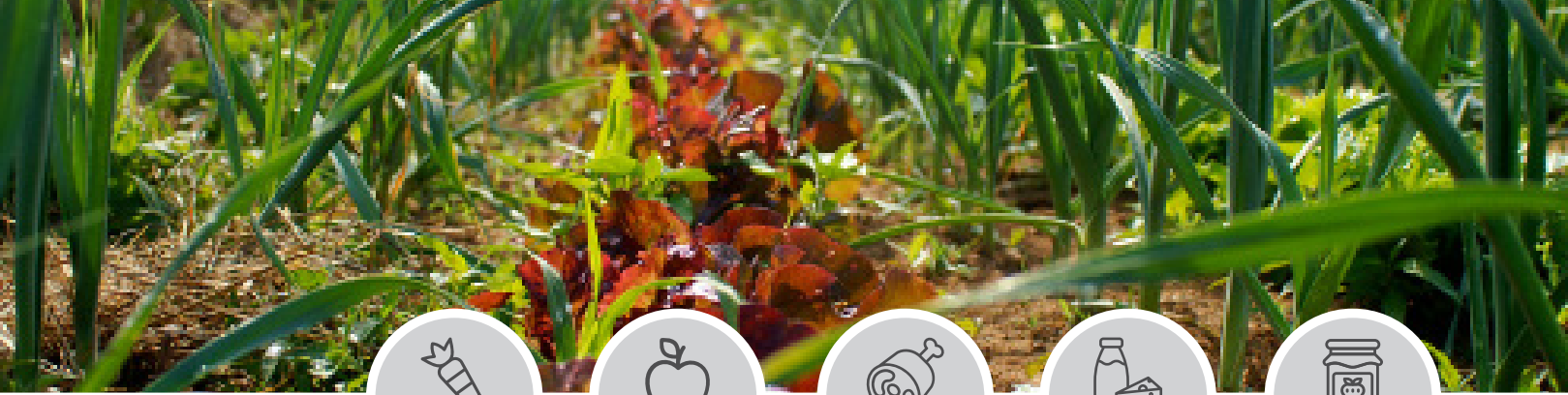
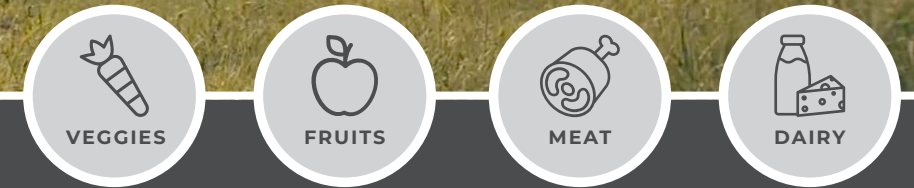


Photo courtesy of 4P Foods.

Photo courtesy of Astoria Food Hub.



4P Foods

Warrenton, VA

-  **INFRASTRUCTURE TYPE**
Aggregation & Distribution, Marketing & Retail
-  **YEAR ESTABLISHED**
2014
-  **OWNERSHIP MODEL**
Privately-owned SBC
-  **PRODUCTS**
Vegetables and Fruit, Meat, Dairy, Value-add Packaged Goods

For example, when COVID-19 shut down their B2B sales, they saw a 10x growth in B2C in six weeks.

4P launched in 2014, with the goal to provide a regenerative and equitable alternative to the industrial food system by adapting to the age of online shopping and food delivery. At that time, founder and CEO Tom McDougall delivered local produce using his bike and public transit. In 2019, the PATH Foundation awarded \$1.2 million to 4P Foods to build a 13,000 square foot warehouse in Warrenton, VA. They were also able to partner with Local Food Hub and Shenandoah Produce to expand their B2B and B2C sales and reach. They have also since helped create the Eastern Food Hub Collaborative. The collaborative links 14 food hubs on the east coast to help share resources and collaborate on delivery routes and cross-docking to maximize farm sales and minimize empty space on delivery trucks.

Philanthropic and economic development aid, including the grant from PATH, has helped 4P to reduce capital requirements for major infrastructure projects. 4P Foods continues to work to integrate other infrastructure into their network of supply webs. By bringing together shared infrastructure they can work to strengthen and preserve cold chain distribution and ensure product quality. The 4P Foods 2020 impact report proudly states that 60 cents of every dollar spent with 4P goes to the farmer, compared to 14.5 cents per dollar at conventional stores.⁵⁷

4P Foods leverages infrastructure and technology to create a scalable, regenerative food supply web in the Mid-Atlantic. They buy food from small and mid-size farmers and food hubs to sell to consumers and businesses. 4P customers can customize their orders and choose delivery or pick-up. Wholesale buyers can also choose fresh seasonal and organic produce, local pasture-raised meat, local and grass-fed dairy, and value-added items from local artisans. This multi-channel approach of business to consumer (B2C) and business to business (B2B) allows for enhanced flexibility in the case of disruptions and increased aggregation capacity.

Astoria Food Hub

Astoria, OR

-  **INFRASTRUCTURE TYPE**
Aggregation & Distribution
-  **YEAR ESTABLISHED**
2021
-  **OWNERSHIP MODEL**
LLC
-  **PRODUCTS**
Vegetables and Fruit, Meat, Dairy

Steward provides flexible loans for regenerative food producers and enterprises to promote environmental and economic stewardship. With the Steward model, qualified lenders can purchase loan participations to fund the growth of a specific regenerative farm. In this way, Steward aggregates capital from private individuals and family offices and widens the network of funders of sustainable agriculture. Steward also has an Evergreen Campaign for short-term diversified credit to provide as bridge loans to businesses to meet immediate funding needs. Further, Steward provides support by helping to write USDA grants for borrowers to fill capital gaps unless they can be filled with equity from an angel investor in the local community. Steward describes that there is increasing interest in loans to support regenerative agriculture infrastructure. CEO Dan Miller says there is a need for enhanced seed funding to grow more shared ownership models of infrastructure, where the profits can go back to the producers.

Food producers in the North Coast of Oregon worked for over a year to plan a solution to bottlenecks in cold storage, value-added production facilities, and aggregation. Regional planning grants were crucial during this initial phase, and in 2021, Jared Gardner, owner of Nehalem River Ranch, formed Astoria Food Hub, LLC. Astoria Food Hub partnered with private investment company, Steward, to secure a loan for a 27,000 sq. ft. historic building downtown that could house their warehouse facilities.

As of March 2021, the lending for the \$700,000 Astoria building has been secured by Steward and participating lenders. The next phase of Steward lending seeks to upgrade the building infrastructure and equipment. Steward is managing a campaign to attract private investors to participate in the loan.



Photo courtesy of East Denver Food Hub.

East Denver Food Hub

Denver, CO



INFRASTRUCTURE TYPE
Aggregation & Distribution



YEAR ESTABLISHED
2020



OWNERSHIP MODEL
Privately-owned



PRODUCTS
Vegetables and Fruit

East Denver Food Hub (EDFH) works to enhance market access for value-based and BIPOC producers to provide farm-fresh food and promote equity and worker dignity in their local food system. First generation farmers, Roberto Meza and David Demerling co-founded EDFH in 2020. The initial funding for the hub came from purchasing contracts, which provided contract money up front and the cash flow from reliable distribution. For example, Nourish Colorado provided \$75,000 from their Farm to WIC (the federal supplemental assistance for Women, Infants, and Children) box program, where recipients of WIC received food boxes with healthy, locally sourced ingredients. Partnership for a Healthier America also funded \$70,500 for food

procurement and \$8,630 for distribution and capacity to purchase for their food box program. These purchasing contracts provided nutritious food for food insecure communities and enabled EDFH to source from farmers that were struggling due to COVID-19 market closures.

In their early days, a private foundation also granted \$100,000 to the hub. This was the first time the foundation had given to an organization that was for-profit and under six months old. EDFH also partnered with a fiscal sponsor to manage \$50,000 in tax deductible donations from community members.

The East Denver Food Hub seeks to create an ecosystem within a warehouse structure that can have sufficient equipment and coworking offices to incentivize regional collaboration. Today, EDFH has a 15,000 sq. ft. warehouse that fosters reciprocal and equitable business relationships. Roberto Meza, EDFH CEO says, "Before the anchor of a warehouse, that was just a pipedream." The warehouse provides a shared infrastructure space that partners can lease for their specific needs. For example, growers from the Western Slope in Colorado store their farmers market material so they don't have to drive back as frequently. A catering company leases cold storage and buys directly from the hub. Also, High Plains Food Coop leases space to pack orders; "they buy from us, and we buy from them".

A focus of EDFH is working with institutions and food access organizations to capture the larger institutional markets and incentivize procurement from local producers. However, Roberto Meza states that one of the biggest barriers is the lack of scaled infrastructure that larger institutions require. If EDFH had access to capital to build those regional facilities, then Meza believes his food hub "could capture a lion's share of those dollars and keep them in the community".

EDFH also fosters regional collaboration by providing a range of services rather than products. EDFH also works to democratize access to funds through collective proposals. This combats the

competition for limited philanthropic funds, which can hinder regional collaboration. One day, Meza hopes to host a collective of proposals and a collective of funders that are "working together on an issue, rather than a singular organization." EDFH also hopes to one day expand to a 75,000 sq. ft. facility to scale their buying power and transfer price cuts to customers. This warehouse could provide incubation for new businesses, a community-owned cooperative market for food access initiatives, and a fulfillment center for new markets.



Photo courtesy of East Denver Food Hub.

Tree Nut Infrastructure

Tree nuts, such as hazelnuts, walnuts, pecans, chestnuts, and almonds, have great potential for regenerative production and agroforestry. Over 90 percent of current production in the US is located in California, which has robust infrastructure and the land, water, and climatic resources needed for the major tree nut crops.⁵⁸ There are numerous opportunities to expand the geographic diversity of tree nut production, as well as the species diversity of production with positive impacts on soil wealth. In the ten year period from 2003 to 2013, income from permanent crops in the US averaged an annualized return of 12.2 percent, compared to 4.5 percent for annual crops.⁵⁹ While this may seem enough to entice a producer or value chain business to switch from annual to perennial production, there is a multi-year lag between when a perennial crop is planted and when income from that tree begins to flow. Similarly, without either on-farm or regional processing infrastructure, market access for many tree crops is limited.



Given the state of market development outside of tree crop hotspots, such as California, this analysis differs from other sections of this report, given the large opportunity but significant challenges that are still present across market segments. The regenerative tree nut industry seeks to develop appropriate harvesting and processing technology, but meets barriers from limited consumer demand. As it relates to hazelnuts and chestnuts, Savanna Institute has cataloged the impact investment needs for those tree crops. They estimate at least \$13.5 million is needed in their strategy to overcome bottlenecks with Midwestern focused infrastructure for nut aggregation, processing & marketing.⁶⁰

Regional regenerative agricultural leaders in the Midwest and Northeast, such as the Savanna Institute, are creating strategies for these perennial crops to replace annual corn and soy crop acreage as a source for protein and oil.^{59,60} For example, according to the Savanna Institute, hazelnuts could help reverse agriculture's role in climate change, and indeed their 2021 Hazelnut Impact Investment Plan states that over 1,500 Mt carbon (about 30 percent of annual US CO2 emissions) could be sequestered in woody biomass alone "if hazelnuts replaced the existing 84 million acres of soybean across the Midwest."⁶⁰

Generally, tree nuts require proper machinery to de-husk, sanitize, crack, size, separate by-products, and process the nuts into flours, oils, nut butters, and other products.⁶¹ The byproducts of the tree nut processing, such as the shells and nut meal mill loss, can also be used for products such as livestock feed and brewing ingredients.⁶¹ For example, the hard outer shell of the black walnut can be used for abrasive cleaning and water filtration.⁶² For hazelnuts and chestnuts, key infrastructure needs include custom harvesting, centralized processing, and aggregation channels in order to scale the industry.^{59,60} The acreage of tree crops outside of California is growing rapidly, with the nuts from these new plantings coming

to market in about ten years. This window of time provides investors ample opportunity to familiarize themselves with tree crop value chains, markets, and strategic ways to deploy catalytic capital to grow the sector.

While there are numerous emerging tree nut companies, non-profits, and research initiatives, there are also some long-standing successful companies in the space. For instance, Hammons Black Walnuts has sourced wild Black Walnuts from local harvesters in southwest Missouri since 1946. They now aggregate from over 215 local buying stations across 11 states, and shells roughly 25 million pounds of nuts annually.⁶³ Some of the products they offer also include protein powder, flavoring, and nutshell products. While most other tree-nut businesses have a tight geographic focus, the footprint of Hammons leverages individuals and families to collect the raw nuts and deliver them to the shelling stations. The longevity of this business highlights the possibilities for similar tree-nut businesses, such as hazelnuts or chestnuts that need improved genetics and other investments to be able to support new business entrants.^{59,60} The processing infrastructure that they have built out over decades is high-quality and customized for black walnuts. Their standard has a zero tolerance for any shell fragments getting into the final product.

The success of this closely held private company rests on the near-total market they control, and the ability for them to monetize multiple elements of the crop. The nutmeats are sold domestically and internationally to consumers, chefs and food manufacturers and the incredibly hard shells are ground and sold for use in abrasive cleaning, water treatment, and other industries.⁶² Further opportunities exist to generate profit from black walnut, as demonstrated by North Carolina's Solid State Clothing's use of black walnut husks as dye for their t-shirts made from locally grown cotton.⁶⁴ The Hammons case demonstrates the market opportunity to develop broad value chains and

numerous value-add products, which all rely on infrastructure to make the product marketable.





While Hammons leverages a vast network of individuals to collect and deliver black walnuts that the company then processes on its infrastructure, other entities in this space either source directly

from contracted farms, have formed cooperatives to share infrastructure and other business functions, or farm a large enough area where the necessary infrastructure can be right-sized for the acreage.⁶⁵ Below are examples of successful tree nut infrastructure enterprises.



Route 9 Cooperative

Carrollton, OH

-  **INFRASTRUCTURE TYPE**
Processing, Aggregation & Distribution
-  **YEAR ESTABLISHED**
2010
-  **OWNERSHIP MODEL**
Cooperative
-  **PRODUCTS**
Chestnuts

The growers of five chestnut orchards in eastern Ohio formed the Route 9 Cooperative in 2010. Their goal is to produce high quality chestnuts and chestnut nursery stock and to actively participate in the chestnut grower and chestnut user communities to develop genetic improvement and better production and handling systems. In 2021, the cooperative exceeded a 100,000 pound harvest and they are currently sold out of culinary chestnuts, seed nuts, trees, and dried products until October 2022.^{66,67}

Chestnut Growers, Inc.

Clarksville, MI

-  **INFRASTRUCTURE TYPE**
Processing, Aggregation & Distribution, Marketing & Retail
-  **YEAR ESTABLISHED**
2001
-  **OWNERSHIP MODEL**
Cooperative
-  **PRODUCTS**
Chestnuts

Over thirty growers came together to form this cooperative that brings together growers from Michigan to produce, harvest and market fresh chestnuts. Producer members send about 100,000 pounds of chestnuts to the cooperative annually.⁶⁸ The cooperative grades, cleans, packages, markets and delivers Chinese and Japanese/European hybrid fresh chestnuts.⁶⁸ Two factors to Chestnut Growers Inc.'s success are forming smart partnerships and carefully managing the cooperative structure of the business. For example, the strategic partnership between Chestnut Growers and Michigan State University helped to troubleshoot genetic traits of certain hybrids, as well as researched marketing and development for value-add products. The Chestnut Growers cooperative agreement guarantees a base price for producers, with premiums for larger nuts. Members also have a market for their products, with demand even exceeding their supply.⁶⁸

Terviva, Canopy Farm Management (Savanna Institute), Propagate





Alameda, CA; Madison, WI; Denver, CO

-  **INFRASTRUCTURE TYPE**
Processing, Aggregation & Distribution
-  **YEAR ESTABLISHED**
2010
-  **OWNERSHIP MODEL**
Private enterprise

These three businesses are not yet active across all pieces of the tree crop value chain, inclusive of infrastructure, but are all working on advancing and maturing the business case for tree crops within each of their separate businesses. This includes land management and planning, financing, farm management, ingredient innovation and production. Each of these businesses has received investment from Grantham Foundation for the Protection of the Environment, as part of their Neglected Climate Opportunities portfolio. As these businesses mature and scale, they will likely open new market pathways for other growers and value chain businesses.

Missouri Northern Pecan Growers, LLC

Nevada, MO

-  **INFRASTRUCTURE TYPE**
Processing, Aggregation & Distribution, Marketing & Retail
-  **YEAR ESTABLISHED**
1999
-  **OWNERSHIP MODEL**
LLC
-  **PRODUCTS**
Pecans

Missouri Northern Pecan Growers stores, processes, and distributes American Native wild, organic pecans, which help to maintain fragile wetlands in their region. Their pecans and pecan oils are found in retail stores in the US and globally. The company is composed of growers from Nevada and Missouri. Annually, Missouri Northern Pecan Growers sources from about 30 to 35 growers. They have steadily grown since their inception in 1999, and sales reached nearly \$3 million in 2015.⁶⁸ The growers and partners who have invested in the business support profitability because there is added incentive to support growth.⁶⁸ Another feature to their success is differentiating their product as wild, native, and organic, meaning consumers will pay more for their product.⁶⁸

Cascade Foods

Albany, OR



INFRASTRUCTURE TYPE
Processing, Aggregation & Distribution, Marketing & Retail



YEAR ESTABLISHED
1987



OWNERSHIP MODEL
LLC



PRODUCTS
Hazelnuts

Cascade Foods is one of the largest processors of hazelnuts in the US. They provide Oregon hazelnut growers with shelling, roasting, dicing, and cold storage for domestic and international markets. They process whole kernel, roasted, in-shell, diced, and organic hazelnuts for wholesale buyers. Cascade Foods also has early payment programs, reliable wash dry partners, and six receiving stations in Northwest Oregon to support growers.

New Communities, Inc.

Albany, GA



INFRASTRUCTURE TYPE
Aggregation & Distribution



YEAR ESTABLISHED
1969



OWNERSHIP MODEL
Community Trust



PRODUCTS
Pecans

New Communities has worked for more than 40 years for racial justice and Black land ownership in southwest Georgia. New Communities was the first land trust in the US, and founding members, Charles and Shirley Sherrod, have laid the foundation for the land trust movement.⁶⁹ Community land trusts offer a strong solution for equitable land access. The titles to the land parcels within the trust are held by a nonprofit corporation and include long-term ground leases, typically 99 years.⁷⁰ These lands are never resold and permanently removed from the market. New Communities farms 800 acres, including a pecan orchard. They sell their pecans to aggregators such as Happy Dirt and Equal Exchange.

Hammons Black Walnuts

Stockton, MO



INFRASTRUCTURE TYPE
Processing, Aggregation & Distribution, Marketing & Retail



YEAR ESTABLISHED
1946



OWNERSHIP MODEL
Privately-owned



PRODUCTS
Black walnuts

Hammons has sourced wild Black Walnuts from local harvesters in southwest Missouri since 1946. They now aggregate from over 215 local buying stations across 11 states, and shells roughly 25 million pounds of nuts annually.⁶³ Some of the products they offer also include protein powder, flavoring, and nutshell products.



OPPORTUNITIES AND LESSONS LEARNED

The increased research and organizing for regenerative agroforestry products has created increased interest in infrastructure businesses for tree nuts. Capital for regional tree nut infrastructure that can effectively provide small and mid-size, regenerative producers with an alternative to the commodity value chain can help shift producers from price-takers to price-makers. In the case of chestnuts, existing and new infrastructure businesses need loans and investments to increase their capacity and meet existing US demand.⁵⁹ According to the Savanna Institute, “modern, efficient and high functioning infrastructure is needed to support the development of a viable commercial industry for chestnuts,” and ideally that infrastructure would be based on cooperative business models that can successfully support small and midscale production.⁵⁹

Tree nut industries need more efficient post-harvest processing, improved distribution and marketing, and research and development to match crop characteristics with specifications to support maturing industries.⁶⁰ Furthermore, patient capital for these businesses and farms is particularly important because trees often take several years to produce crops.



Findings & Recommendations

Through our research and conversations with stakeholders, private investors, and business owners, we identified key themes from the reflections and lessons learned.

Many of the case studies we highlighted were successful due to their ability to access patient, long-term, integrated capital, as well as leverage specific types of investment sources and financial mechanisms that allowed them to meet their capital needs within the context of their business. In addition to particular aspects of capital that work for regenerative infrastructure businesses, there was a clear call for additional resources such as technical assistance, training and recruitment for skilled labor, and coalition building. These reflect the national demand to build regional, well-planned, strongly connected regenerative agriculture supply networks using a systems and values-based approach.



1 Meet businesses where they are with aligned capital

Regenerative agricultural infrastructure businesses take many shapes and sizes based on their position in the value chain, the producers and communities they work with, their stage of business, and the sector of agriculture they work in. These non-traditional businesses are working in complex regional and local food systems with small to mid-sized producers and are trying to balance social and environmental impact with financial viability. Integral to the regenerative food ecosystem, these businesses often prioritize environmental resilience, access to healthy food, and equitable economic development. However, their business models often find themselves misaligned with conventional sources of capital that do not recognize the need to sustain and grow impact over the long term.⁷¹ Fortunately, a growing number of regenerative infrastructure businesses have been able to access non-traditional, appropriate, and aligned capital sources that value social and environmental outcomes, in addition to financial return.

Investing in infrastructure businesses within regenerative agricultural value chains differs substantially from investing in farmland or consumer packaged goods companies that can either easily access debt capital or offer high returns to equity investors. Even when there are low-cost loans available to these businesses, if the debt remains dependent on collateral to get approved, it will be challenging for early-stage businesses to access this capital.⁷² As food infrastructure businesses grow, they can be at risk

of over-leveraging their business if they don't grow as quickly as planned.⁷²

Return expectations also need to be in alignment with the realities of regenerative infrastructure businesses profit and growth potential. Most regenerative infrastructure businesses do not fit into short-term capital structures that require high returns and rapid value maximization as investors seek to exit. Fortunately, investors are increasingly questioning whether growth in the value of their equity stake really equates to greater impact. Instead, funders and capital providers seeking positive impact are beginning to recognize that returns can be rightsized with what the company and stakeholders need as well as what the system can feasibly handle.⁷¹ Furthermore, models that can leverage more patient capital, with long-term investment horizons or evergreen funds, allow regenerative infrastructure businesses to achieve profitability while staying true to mission. While these characteristics may currently be well suited for pension funds and family offices, a widening circle of investors are starting to adopt this type of flexibility and patience which is required to meet the growing need for investment in this space.

Because of their size, scale, and operational practices, regenerative infrastructure businesses can be more resilient than their large-scale, conventional counterparts—which can help reduce risk in an investor's portfolio. This was proven in the wake of the COVID-19 pandemic. Shorter food

chains allowed for greater flexibility and the ability to pivot from wholesale to direct markets as demand from households increased.⁷³ When value chain businesses work with suppliers that incorporate climate-smart practices such as diversified cropping systems, perennially pastured livestock, water efficiency, closed loop nutrient recycling, integrated pest management, and formalized risk management strategies, their supply has a greater ability to withstand extreme market and weather volatility. Food infrastructure that can leverage resiliency measures across the value chain are more likely to make timely loan repayments and meet their profitability goals.

Integrated capital, coined by RSF Social Finance, is the coordinated use of different forms of financial capital and non-financial resources to support an enterprise that's working to solve complex social and environmental problems. These various forms of capital and resources include loans, loan guarantees, equity and equity-like investments, grants, and technical assistance.⁷⁴ Because of the complexity of regenerative agricultural infrastructure finance, leveraging a variety of financial tools can provide an entrepreneur with realistic and appropriate terms that prioritize mission alongside return. However, facilitating customized capital can take time and require financial, sector, and community-based expertise to ensure financial viability.

The following financial sources and mechanisms are uniquely positioned to support the needs of regenerative agriculture infrastructure businesses.

CASE STUDY

RSF SOCIAL FINANCE

Alternative models have emerged to alleviate the limitations of traditional forms of collateral, especially for start-up enterprises with limited cash reserves or existing loans. RSF Social Finance has been able to structure financing in which a company's perishable product is used as collateral, for example. RSF used both its Food System Transformation Fund, which is capitalized by foundations and individual investors who are interested in rebuilding regional food systems and who understand the inherent risks in this sector, and its Local Food Capital Collaborative, a philanthropic fund created to provide flexible capital to local food enterprises.

Grass Roots Farmers' Cooperative Clinton, AR



INFRASTRUCTURE TYPE

Processing



YEAR ESTABLISHED

2014



OWNERSHIP MODEL

Farmer Cooperative



PRODUCTS

Grass-fed Beef and Lamb,
Forested Pork, Pastured Poultry

Grass Roots Farmers' Cooperative, a collective of family farms practicing ethical animal husbandry and regenerative agriculture in Arkansas, determined that they needed to invest in their own processing facility to meet their desired quality and specifications. However, this depleted their cash reserves and restricted their ability to cover operating costs. After going to many traditional lenders, they approached RSF Social Finance, who was able to entertain the idea of using their meat as collateral on a loan. RSF leveraged grant funding to pay a special auditor to assess the cooperative's inventory and offer guidance on the deal. In 2016, RSF offered a two-part financial package, including a loan to cover its investment in the processing plant and a line of credit to support operating costs.⁷⁵

Philanthropy and Government Grants

Grant funding is essential in a capital stack to support mission-aligned regenerative agricultural infrastructure businesses and can allow funders to be more creative and take on greater risk. Philanthropy and government programs can be integral in the start-up phase that requires high up-front costs in facilities, equipment, and planning; subsidizing some of these costs can provide the needed cushion for these low-margin operating budgets once the business is up and running.

Grants can support necessary technical assistance or business planning needed to identify the appropriate capital required and plan for a successful build, renovation, or business launch. Further, this type of capital can encourage and promote greater involvement from community members and stakeholders across the value chain that can help ensure equity is embedded in the decision-making process and ultimately build community wealth. Grants can be used to provide risk-mitigating mechanisms like loan guarantees, as well as be used to offer forgivable loans.

Start-up infrastructure businesses find it difficult to access traditional bank loans or other forms of debt to fund capital expenditures on equipment and machinery. However, if debt is not available, entrepreneurs may be left with expensive forms of equity that can diminish control over the company's mission. As low-margin businesses, government and philanthropic grants can reduce the amount of equity and debt needed to make up the full investment cost. The negative impacts of debt servicing on cash flow can sink a business, so grants are critical in the low-margin start-up phase.

Philanthropy and government programs can also provide loan guarantees, allowing regenerative infrastructure businesses to access a greater amount of capital. For example, USDA recently

launched their Food Supply Chain Guaranteed Loan Program, which guarantees loans of up to \$40 million for qualified lenders to finance food systems projects, specifically for the start-up or expansion of activities in the middle of the food supply chain, particularly food aggregation, processing, manufacturing, storage, transportation, wholesaling, and distribution. Their goal is to increase capacity and create a more resilient, diverse, and secure U.S. food supply chain.⁸¹

Economic Development Finance

Economic development finance can be used to support and catalyze the physical development, redevelopment, or expansion of regenerative food infrastructure businesses that benefit the long-term health of a community.⁸² Small business investment and capital access expansion is an important public purpose for development finance agencies due to their ability to provide local jobs, work with local suppliers in the community, and benefit the economy in a more direct way than a larger business.⁸² Examples of regenerative agriculture infrastructure projects include gathering spaces like restaurants and cafes that could also rent or share kitchen space.⁸³

This type of capital can complement other forms of financing like debt and equity to create a capital stack that meets the needs of the infrastructure project. Development finance agencies support the administration of development finance through various direct and indirect financing programs, which can operate at the state, county, township, borough, or municipal level.

Bond Financing

Bonds are a commonly underutilized capital source for small to midsize food infrastructure businesses. Not only do entrepreneurs lack the knowledge or expertise to pursue bond financing, many small development finance agencies are not set up with the skills to support small-scale food infrastructure.

Cairnspring Mills Burlington, WA



INFRASTRUCTURE TYPE

Processing



YEAR ESTABLISHED

2017



OWNERSHIP MODEL

Privately-owned



PRODUCTS

Stone-milled Flour

Cairnspring Mills launched with a goal to create viable markets for Washington's Skagit Valley grain farmers. These farmers generally harvest their crop only once at the end of the year, so Cairnspring needed the capital to pay upfront for inventory that would be milled and packaged the following year. As an alternative to the industrial commodity grain system, Cairnspring offered growers an average of \$2 a bushel above the market price for wheat.⁷⁶

When Cairnspring was starting out, they did not have adequate cash flow to obtain a line of credit from traditional banks. RSF Social Finance was able to support Cairnspring with a \$300,000 line of credit through their Food System Transformation Fund. Because Cairnspring did not have the cash reserves for collateral, RSF instead used the value of the mill's purchased grain and a \$50,000 loan guarantee from its Local Food Capital Collaborative.⁷⁶

As Cairnspring Mills continues to grow, Mission Driven Finance has also provided financing through their Regenerative Harvest Fund, which provides inclusive and flexible financing to regenerative value-added processing, packing, and distribution facilities for regenerative producers, to purchase additional equipment and grain to prepare for future summer harvests.⁷⁷

Veritable Vegetable San Francisco, CA



INFRASTRUCTURE TYPE
Aggregation & Distribution



YEAR ESTABLISHED
1974



OWNERSHIP MODEL
Privately-owned



PRODUCTS
Organic Produce

Founded in the early 1970s, **Veritable Vegetable** is a women-owned organic produce distributor that purchases, transports, and supplies organic fruits and vegetables in the greater San Francisco market.⁷⁴ As the business grew and they needed more space, there were not many affordable options on the market. Instead, they decided to lease an additional 20,000 square feet across the street from their current location that required \$4 million in renovations, including \$1 million for refrigeration and \$3 million for improvements such as LED lighting, updated warehouse technology, and a reconfiguration of the space so it could accommodate more effective handling equipment.⁷⁸

RSF first contributed \$30,000 in matching funds to a \$100,000 USDA grant that Veritable Vegetable received. They then coordinated a small group of investors with whom RSF has a long-standing relationship to make a \$400,000 investment in subordinated, unsecured loans. An additional \$270,000 was provided by the Local Food Capital Collaborative. Finally, RSF and New Resource Bank each made a \$1.6 million term loan to the company.⁷⁴

However, there is an opportunity to deploy industrial development or manufacturing bonds. Although they are relatively small-issue bonds raising at most \$10 million, they can be the perfect size for regional infrastructure projects. Tax-exempt bonds, like revenue bonds, can also be appealing to both investors and entrepreneurs. While bond financing can be an affordable type of capital, it tends to be the least flexible. So, infrastructure businesses need to ensure that they have the business model and incoming revenue to pay back the debt over time.

Credit Enhancements

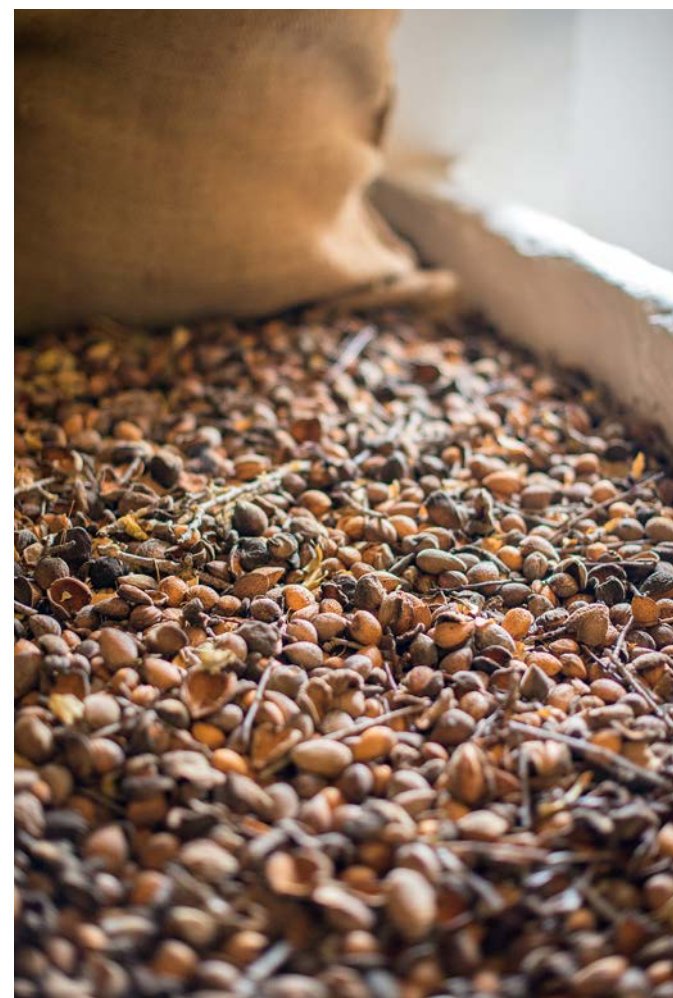
While credit enhancements are commonly used in traditional markets to improve the credit worthiness of an investment opportunity, they have been underutilized in impact investment markets.⁸⁸ Examples of credit enhancements include loan guarantees and first loss capital. These instruments can support regenerative infrastructure investments with high social and environmental impact that are often perceived as high financial risk either due to the size of the expected financial return or track record in the industry.⁸⁸

Royalty Financing

Royalty financing can be an important component of near equity capital or mezzanine financing, that does not dilute company ownership, as other traditional forms of equity do. According to The Flexible Capital Fund, a CDFI lender in Vermont, royalty financing provides an equity solution to companies by selling a piece of the revenue stream instead of selling ownership. Payments can be structured over a fixed period or up until the investor receives a predetermined rate of return. Royalty financing provides the flexibility needed for infrastructure businesses because it matches the company's actual growth - the company is not locked into a fixed payment and interest schedule as they would be in fixed income financing. Royalty based financing also gives investors a "natural" way to exit the deal.⁸⁹

Evergreen Funds

Evergreen funds and more permanent types of capital structures can support regenerative agricultural infrastructure businesses. Evergreen funds do not have steep growth trajectories, which allows traditional equity investors to earn their expected return when exiting. Short-term investment horizons can conflict with a company's mission, prioritizing profits over social and environmental impact. Evergreen funds, on the other hand, because of their long time horizons (100 years or more) can provide long-term, patient capital. This enables companies to sustainably grow and take a long view towards their impact without the restrictions of conventional fund structures or exit requirements.⁷¹



Organically Grown Company Eugene, OR



INFRASTRUCTURE TYPE
Aggregation & Distribution



YEAR ESTABLISHED
1978



OWNERSHIP MODEL
Perpetual Purpose Trust



PRODUCTS
Vegetables and Fruits

Organically Grown Company (OGC) is one of the largest, independent produce distributors in the nation, moving more than 100 million pounds of fresh fruit and vegetables annually across the Pacific Northwest. As a values-based business, OGC was determining how to transition ownership from the company's founders to a new ownership model in an equitable way.⁷⁹ Previously employee- and grower-owned, OGC decided to reorganize the company into a Sustainable Food and Agriculture Perpetual Purpose Trust, an innovative stewardship model of business incorporation that harnesses the power of entrepreneurial for-profit enterprise, while preserving a company's essential purpose to create products and services that deliver societal value and protecting it from extractive capital. The trust will eventually hold 100 percent of the ownership rights and ensure that the company delivers positive economic, social and environmental impact and maintains its independence in perpetuity, never to be sold.⁷⁹

To make the transition, OGC needed funding to buy back stock from its retiring founders and transfer ownership from the employee stock ownership plan (ESOP) to the trust. RSF provided its largest loan to date -- \$10 million -- to buyout shareholders, as well as \$1 million in working capital.⁸⁰



Photo courtesy of CommonWealth Kitchen.



CommonWealth Kitchen

Boston, MA



INFRASTRUCTURE TYPE

Processing, Incubator Kitchen & Co-manufacturer



YEAR ESTABLISHED

2009



OWNERSHIP MODEL

Nonprofit



PRODUCTS

Prepared and value-add food products

CommonWealth Kitchen (CWK) is a Boston-based food business incubator that provides a launching pad for diverse entrepreneurs to start and build successful food companies through shared kitchen space, co-manufacturing, and technical assistance. In 2012, CWK started looking for a larger facility and entered into an agreement with the Dorchester Bay Economic Development Corporation to redevelop a former meat packing plant with CWK as the anchor tenant. With additional support from HUD's CHOICE Neighborhoods program, the \$15 million project was completed, tripling CWK's footprint

and increasing average membership from 15 businesses a year to nearly 50.⁸⁴

After 6 years of growth in the Dorchester facility, CWK's executive director Jen Faigel started looking for a permanent space to ensure that the original vision to create a hub for small and diverse food companies to collaborate and to build an equitable food economy can be fully realized. Ownership of their headquarters would allow CWK to reconfigure and streamline operations, invest in energy improvements and repairs, and secure their long-term occupancy for their many entrepreneurs working in the space.⁸⁵ By 2021, CWK had grown from a team of 4 to over 20 while their budget increased from \$300,000 to over \$3.5 million a year.⁸⁴

With a collaboration of economic development organizations and philanthropy, CWK was able to enter into an agreement with the Dorchester Bay Economic Development Corporation to purchase their current 36,000 square foot facility that they had been renting for a below-market price of \$7 million. In early 2022, the purchase was complete with the support of \$5.7 million in financing from the City of Boston and HUD, and \$2.5 million in financing from the Commonwealth of Massachusetts through MassDevelopment, which included a \$750,000 forgivable loan.^{85,86}

Faigel estimates that about 70 operating businesses in Boston, most of them owned by people of color, have spent time under Commonwealth's roof. The businesses that use the shared kitchen today collectively employ around 125 people, while another 20 work directly for Commonwealth.⁸⁶

Philanthropy also played a role in CWK's purchase and continued development of their facility. The Cummings Foundation has made their largest grant to date, committing \$2 million to CWK. The first \$1 million will be allocated over the next ten years to support operating costs, and the second \$1 million is provided as a matching grant to purchase the property.⁸⁷

Today, CWK and member entrepreneurs earn \$55 million in combined annual revenue and have created over 600 jobs.



Photo courtesy of CommonWealth Kitchen.

“

By buying our building, CWK will be able to keep more small food businesses rooted in Boston, create economic opportunity for our diverse slate of businesses, and focus on equity in the food economy. The work of CWK—launching diverse entrepreneurs and helping them build successful companies—is more important now than ever.”⁸¹

JEN FAIGEL

CommonWealth Kitchen Executive Director

2

Foster strong collaboration and partnerships

Producer-to-business and business-to-business collaboration

Partnerships and collaboration between producers and infrastructure enterprises are central to the growth of coordinated regional food systems. Value chain businesses rely on producers to provide the volume necessary to run their business. Likewise, producers rely on value chain businesses to bring their products to market. In the traditional capital marketplace, other businesses, such as CPG, that don't touch the high CapEx, thin profit margin infrastructure systems, have had a higher chance of getting funding. Yet, they are reliant on infrastructure to grow and thrive. Therefore, many businesses would benefit by shifting to a collaborator, rather than a competitor mindset.

In traditional lending, where the industries are fully developed, funders can finance a narrow section of the industry. However, the regenerative food system is missing the middle portion of the system that is necessary to scale the industry. Furthermore, both upstream and downstream regenerative businesses are needed to stand up viable supply and demand. This causes a “chicken and egg” type of challenge, where multiple pieces are needed concurrently to stand up the system. It is crucial that funders and planners focus on the broader scope of the regenerative system. Ecosystems of infrastructure businesses that are

mutually beneficial have proven to be a key factor for profitability and successful financing. This can be in the form of shared ownership models, as well as strong, committed, or contractual relationships between producers and value chain businesses.

Committed collaboration in the form of contractual partnerships was also frequently mentioned as a way to grow infrastructure. As previously cited, a study by the USDA on successful local meat processing case studies found that “committed business relationships and a long-run interdependence between processors and farmers” were key to the success of local meat processors.¹² Similarly, documented interest from buyers is not enough to determine sufficient demand to invest in additional infrastructure for regenerative crops, whereas a “contract you can take to the bank”. These mutually beneficial relationships not only support the success of the business, but they can also help to attract more financing. In other words, as one interviewee stated, “the relationships enable the infrastructure”.

Business and finance collaboration

In addition to seeking collaborative ecosystems of agricultural businesses, stronger financing occurs when investors seek to build trusted relationships with these communities. This helps ensure mission-alignment and that the investor

understands the complexity of the infrastructure business to fully meet the needs of the entrepreneur and set them up for success. Building collaborative relationships is a key way to reduce risk, which is not typically quantified in credit scores or risk assessments. Some of those we interviewed described this as “trust-based finance” or “relational finance”. For example, in one funded project with a grocery store working to address food apartheid in an historically Black community,

the loan officer committed 30 minutes a week for the 7-year loan term to building the trust and relationships needed to ensure success. Self-Help Credit Union is also engaging other capital providers in a national network of lenders and organizations committed to redefining risk and improving capital access for underserved food entrepreneurs through a trust and relationship-based approach.^{90,91}



3 Importance of business planning and technical assistance

Regenerative agriculture businesses require regional coordination of complex moving parts. Therefore, business and management technical assistance (TA) embedded in financing structures can work to mitigate the financial risk. Many of those we interviewed emphasized the importance of TA alongside financing. There are several technical providers in the infrastructure space that are already working to fill these gaps. For example:

FOOD FINANCE INSTITUTE provides training, consultations, and digital resources to build and fund the next generation of profitable food, beverage, and value-added agriculture businesses. They also have a digital resource library, the Edible-Alpha® Learning Center, which is searchable by business model, business stage, and topic.

FOODSHED INVESTORS provide advisory services to support food systems businesses as they grow, while managing costs. They do so by providing financial and operational analysis, along with objective feedback, to help entrepreneurs make decisions in their daily operations. They also provide funding readiness technical assistance, which includes helping to define terms and finding the right kind of capital for their specific needs.

HOPE AND MAIN is a culinary incubator and manufacturing facility in Warren, Rhode Island, which gives food businesses a low-risk opportunity

to test, scale and develop without the cost and liability in equipping, managing, and maintaining their own commercial facility. They provide commercial kitchens and co-packing services to their members, as well as a five-week learning program for business planning and forecasting. They also provide licensing support and trade shows for their members.

KITCHEN TABLE CONSULTANTS provide advising, coaching, and hands-on support to help farmers and food artisans build lasting, profitable, locally focused businesses. They offer services such as bookkeeping, interim, and virtual business management, roundtables, and financial management training. This helps business owners to set up sound record keeping and accounting systems for proper financial documentation, so they can access capital.

THE NICHE MEAT PROCESSOR ASSISTANCE NETWORK is an Oregon State University Extension-based community of practice, which offers tools and technical assistance for small meat processors and the farmers, marketers, and meat buyers who depend on them. They provide a wealth of online resources, a state resource database, one-on-one office hours, and convenings.

Some investors have technical assistance built into their lending. For example, Slow Money groups in California provided the Bay Area Ranchers' Cooperative (BAR-C), a meat processing cooperative in California, with a mentor to help with their pitch decks when they were seeking funds. Steward also helps some of their participating businesses with grant writing support for planning grants. The Astoria Food Hub they funded received \$50,000 from the USDA to create a plan and make it a financeable project. Easier, more readily available access to project development grants would be a great resource

for new and emerging regenerative agriculture infrastructure businesses.

Agricultural enterprises need a wide range of culturally appropriate and aligned TA, especially businesses with a racial equity component. Stakeholders we interviewed mentioned technical assistance like business planning, marketing, real estate, licensing, and regulation TA, among others. It is important for these technical providers to be well-versed in the dynamics of place and community.



“

Labor is a really big piece...a lot of the time you're investing in the operator, not the idea.”

JARRED MAXWELL
Foodshed Investors

4 Workforce development

Many infrastructure entrepreneurs mentioned access to skilled labor as a challenge that may hinder the growth and success of their businesses. Agricultural jobs in the large-scale industrial sector can be low-pay and dangerous.^{92,93} Regenerative, values-based enterprises pose an opportunity to provide a living wage and decent jobs for rural and urban communities. Access to free or affordable apprenticeship and community college programs would help to grow the skilled labor pool. Meat processing requires highly trained people

to slaughter and butcher the animals. There is also a need for people who know how to operate processing equipment and manage warehouse operations. Investors have noted how infrastructure businesses are investing in their workers and seek to steward the workforce of the regional food system. Well-paid, safe jobs are a central piece of regional and regenerative supply networks that benefit rural communities and bring environmentally and nutritionally sound foods to people's tables.

5 Equity, ownership, and community wealth building

Some investors are actively seeking to fund BIPOC-owned infrastructure enterprises and working to grow community ownership of supply chains. This works to establish lasting and resilient regional, regenerative supply networks for the country, not just a select few. Equitable Food Oriented Development (EFOD) is one framework being used by investors and development practitioners to reap the benefits of food projects and enterprises as vehicles for community development and health. This framework recognizes that in order to promote EFOD, an equity-driven finance industry that provides appropriate capital is critical.⁹⁴ For example, traditional collateralized loans place the risk on the infrastructure business and its suppliers – if a company has to cease operations, a lender needs to determine whether that burden gets placed on investors or the farmers with outstanding accounts receivables.⁹⁵ Additionally, the EFOD Fund is a \$1 million grant fund supported by the Kresge Foundation, which

is “modeling an alternative form of finance for community-led, justice-first, food-based community economic development and prioritizes the expertise of BIPOC practitioner-leaders as designers and decision-makers.”^{96,97} Their strategy is to deploy integrated capital with terms set in partnership with the practitioners. They will also pair their investments with culturally relevant, practitioner-led technical assistance to support the long-term success and impact of EFOD projects.⁹⁶ For example, the fund awarded a grant to the Black Food Sovereignty Coalition in Portland, OR to support the development of the coalition's Black Food Economy Project and Community Co-Pack facility. This will create a “local Black-owned network to expand food-based economic opportunities in Portland, OR, and the surrounding area”.⁹⁶ This demonstrates how investors can foster community ownership, which in turn improves impact and profitable longevity.

“

Infrastructure builds community and builds shared resources.”

DAVID COOPER
Mission Driven Finance, Regenerative Harvest Fund

Conclusion

As the Croatan Institute 2019 Soil Wealth report states, “Opportunities to invest in regenerative agriculture in the United States have emerged across asset classes.” While the interest and activity have grown substantially, even in the past three years, the distribution of those funds has been disjointed, both across asset classes and across agricultural value chains. Investors have shown an intense interest in real assets (such as land) and in CPG companies and AgTech. However, the more limited flows of capital into mid-tier infrastructure assets, projects, and businesses have hampered growth in the regenerative agriculture sector. This limits the pathways to market for regenerative producers and restricts access to healthy and eco-friendly products for consumers.

Agricultural infrastructure is the “rising tide that lifts all boats”. These enterprises provide critical services to market participants both upstream and downstream, shifting from an extractive agricultural system to one that builds soil wealth and supports the distribution and access of healthy foods and human health. The failings of the centralized and concentrated food system in the US have become clear. The imperative for a more regionalized, resilient, and equitable system are now well understood. Yet, a new system will require the deployment of significant financial and non-financial resources. For example, new forms of non-extractive capital are the most appropriate to construct these systems. Interviewees for this report overwhelmingly agreed that traditional forms of capital match the structure of centralized, conventional supply chains, and therefore do not fit the regenerative model.

These innovative forms of capital work to reimagine capitalism to contextualize profitability in light of environmental conservation and stewardship, climate resilience, and social equity. The examples and pathways highlighted in this report use various forms of catalytic capital that are working successfully and profitability funding unique, regenerative business models that incorporate explicit social and environmental missions. The patient, flexible, and non-extractive capital deployed across these examples, coupled with the technical assistance and other forms of business and enterprise support demonstrate the emerging systems available to build profitable, resilient, regenerative value chains.

About the authors

ANNA ASPENSON is an Associate at Croatan Institute, where her work focuses on place-based agricultural solutions to rebuilding healthy ecosystems and communities. Before joining Croatan Institute, Aspenson worked as a program associate for Food System Policy at Johns Hopkins Center for a Livable Future, where she authored, “‘True’ Costs For Food System Reform: An Overview Of True Cost Accounting Literature And Initiatives” and co-authored, “Essential and in Crisis: A Review of the Public Health Threats Facing Farmworkers in the US.” Her work has also focused on agricultural research and development with ICARDA (CGIAR), as well as project management for community-driven food security initiatives in the highlands of Guatemala. Aspenson holds an MPH from Johns Hopkins Bloomberg School of Public Health and a B.A. from American University. She is based in Baltimore, Maryland.

JAIME SILVERSTEIN is an Associate at Croatan Institute. She also sits on the board of directors for Metta Earth Institute. Previously, she has worked as a farm business advisor for NOFA-VT; crop R&D specialist for Freight Farms, a Boston-based urban agriculture start-up; program coordinator for Slow Money Boston; and senior research fellow at the Sustainable Endowments Institute, where she led research on responsible investing practices at colleges and universities. She holds a B.S. in Business Administration from Boston University and an MBA from the University of Maine.

Silverstein has collaborated on various sponsored research projects addressing finance and sustainability, including “Soil Wealth” (2019) and “Institutional Pathways to Fossil-Free Investing” (2013). She has contributed to outreach and research, surveying institutional investors and money managers for the US SIF Report on US Sustainable, Responsible and Impact Investing Trends.

She is based in Kittery, Maine, where she is involved in a local climate advocacy group and community garden project.

DAVID LEZAKS, Ph.D., Senior Fellow, is an environmental scientist and financial activist whose work is centered around developing innovative mechanisms for financing the transition to agroecological farming and food systems.

Before joining Croatan Institute, Dr. LeZaks led the Regenerative Food Systems initiative at Delta Institute in Chicago, where he managed a portfolio of projects that focused on the design and deployment of disruptive mechanisms to unlock substantial capital flows into regenerative agriculture.

Previously, he served as an RSF Social Finance Integrated Capital Institute fellow. Earlier in his career, David was a postdoctoral scientist at the University of Wisconsin – Madison, where he completed his Ph.D. in Environment and Resources and an M.S. in Land Resources. Afterward, he served as Managing Scientist of the Knowledge Systems for Sustainability Consortium and Program Director of the university’s Agricultural Innovation Prize. Currently, he serves in advisory roles to Mad Agriculture, the Savanna Institute, Nourish^n, Council of Development Finance Agencies’ Food Systems Finance Advisory Council, and the Transformational Investing in Food Systems initiative, an allied initiative of the Global Alliance for the Future of Food.

He is based in Madison, Wisconsin, where he is active in a number of community organizations and spends his spare time gardening and participating in a variety of silent sports.

About Croatan Institute

Croatan Institute is an independent, nonprofit research and action institute whose mission is to build social equity and ecological resilience by leveraging finance to create pathways to a just economy.

Since our launch on Earth Day in 2014, we have worked collaboratively with more than 125 organizations, including environmental nonprofits, community development organizations, farmers and land stewards, impact investors, foundations, and government agencies, on complex problems at the intersection of finance, social equity, and ecological resilience. Our team has prioritized equity and inclusion, building relationships of trust with practitioners in the field and with movements for social and environmental change to expand the footprint and impact of our work.

The Institute’s team includes a group of committed, interdisciplinary scholars, scientists, financial activists, advocates, and analysts who have developed a reputation for delivering rigorous research and actionable insight working on issues at the intersection of finance and social equity and inclusion, climate change solutions, farming and forestry, food systems, institutional accountability, business and human rights, and resilient communities, as well as by developing useful frameworks and data analytics for sustainable and impact investing.

Citations

1. IPCC. *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*. <https://www.ipcc.ch/srccl/> (2019).
2. Electris, C., Humphreys, J., Lang, K., LeZaks, D. & Silverstein, J. *Soil Wealth: Investing in Regenerative Agriculture across Asset Classes*. <https://croataninstitute.org/soilwealth/> (2019).
3. Hendrickson, M. K. Covid lays bare the brittleness of a concentrated and consolidated food system. *Agric. Hum. Values* 37, 579–580 (2020).
4. Berti, G. & Mulligan, C. Competitiveness of Small Farms and Innovative Food Supply Chains: The Role of Food Hubs in Creating Sustainable Regional and Local Food Systems. *Sustainability* 8, 616 (2016).
5. O'Connor, J. *Barriers for Farmers and Ranchers to Adopt Regenerative Ag Practices in the US*. <https://forainitiative.org/barriers-for-farmers-ranchers/> (2020).
6. Hendrickson, M. & Howard, P. H. Corporate concentration in the US food system makes food more expensive and less accessible for many Americans. *The Conversation* <http://theconversation.com/corporate-concentration-in-the-us-food-system-makes-food-more-expensive-and-less-accessible-for-many-americans-151193> (2021).
7. Ecotrust. *Oregon Food Infrastructure Gap Report*. <https://ecotrust.org/wp-content/uploads/Food-Infrastructure-Gap-Report1.pdf> (2015).
8. LeZaks, D. & Ellerton, M. *The Regenerative Agriculture and Human Health Nexus: Insights from Field to Body*. 35 (2021).
9. Montgomery, D. R., Biklé, A., Archuleta, R., Brown, P. & Jordan, J. Soil health and nutrient density: preliminary comparison of regenerative and conventional farming. *PeerJ* 10, e12848 (2022).
10. Conser, R. Regenerative Agriculture Must Scale Or Die. *Forbes* <https://www.forbes.com/sites/russconser/2021/12/06/regenerative-agriculture-must-scale-or-die/> (2021).
11. Regenerative Organic Certified. *Regenerative Organic Certified* <https://regenorganic.org/>.
12. Gwin, L., Thiboumery, A. & Stillman, R. Local Meat and Poultry Processing: The Importance of Business Commitments for Long-Term Viability. 50.
13. CRASH COURSE: Meat processing 101 Small Plant Economics (3 of 4). *Niche Meat Processors Assistance Network* https://www.nichemeatprocessing.org/wp-content/uploads/2016/08/CrashCourseThree_Final_revised_8.31.pdf.
14. de Faccio Carvalho, P. C. *et al.* Reconnecting Grazing Livestock to Crop Landscapes: Reversing Specialization Trends to Restore Landscape Multifunctionality. *Front. Sustain. Food Syst.* 5, (2021).
15. Lal, R. Integrating Animal Husbandry With Crops and Trees. *Front. Sustain. Food Syst.* 4, (2020).

16. *Meat in the Middle Webinar*. (2021).
17. Allison, J. Island Grown Farmers Co-op to build new meat-processing facility. *goSkagit* https://www.goskagit.com/news/local_news/island-grown-farmers-co-op-to-build-new-meat-processing-facility/article_99883c33-e272-55e9-bf87-59da88421845.html (2020).
18. Lorentz Meats Case Study. *Niche Meat Processors Assistance Network* <https://www.nichemeatprocessing.org/wp-content/uploads/2019/07/Lorentz-Meats-Case-Study.pdf> (2013).
19. Jones, C. Blue Nest Beef sees an opportunity as pandemic roils meat market. *Minneapolis / St. Paul Business Journal* <https://www.bizjournals.com/twincities/news/2020/07/13/blue-nest-beef-pandemic-sales-boost.html> (2020).
20. McLoughlin, D., Shelman, M. & Ryan, C. Blue Nest Beef: Going Against the Grain. *Purdue Food Agribus. Exec. Summit* 28 (2021).
21. Ashoka Contributor. The Chicken And The Egg: Stop Linear Farming And Embrace Circular Agriculture. *Forbes* <https://www.forbes.com/sites/ashoka/2018/10/23/the-chicken-and-the-egg-stop-linear-farming-and-embrace-circular-agriculture/>.
22. Kuipers. The collective future of American agriculture. *Food and Environment Reporting Network* <https://thefern.org/2021/12/the-collective-future-of-americas-food-system/> (2021).
23. Regenerative Poultry Solutions. *Farm Credit* <https://farmcredit.com/story/regenerative-poultry-solutions>.
24. Mesesan, C. New Partnership Brings Tree-Range® Chicken to Americans' Doorsteps. *Iroquois Valley* <https://iroquoisvalley.com/2021/02/03/new-partnership-brings-tree-range-chicken-to-americans-doorsteps/> (2021).
25. Leavitt, M. Tree-Range Farm Tour: Regenerative Ag Venture Coming To Albert Lea. *Albert Lea Seed* <https://alseed.com/tree-range-farm-tour-regenerative-ag-venture-coming-to-albert-lea/> (2022).
26. Timberland. Timberland Announces Partnership to Build Leather Supply Chain From Regenerative Ranches. *3BL Media* <https://www.3blmedia.com/news/timberland-announces-partnership-build-leather-supply-chain-regenerative-ranches> (2019).
27. Timberland Sets Bold Environmental Vision for 2030. *VF Corporation* <https://www.vfc.com/news/featured-story/71897/timberland-sets-bold-environmental-vision-for-2030>.
28. Anderson, D. Timberland invests in regenerative leather ranches. *Greenbiz* <https://www.greenbiz.com/article/timberland-invests-regenerative-leather-ranches> (2020).
29. Case Studies from the Roadmap. *Sustainable Agriculture & Food Systems Funders* <https://www.agandfoodfunders.org/featured-work/sustainable-fibers-and-textiles/case-studies-from-the-roadmap/>.

30. Ecotrust. *Differentiated Cost of Production in the Northwest: An Analysis of Six Food Categories, Wheat & Small Grains*. (2016).
31. Hartman, A., Berlow, A., Halloran, A., McFarland, A. & LeZaks, D. Midwest Grainshed Supply Chain Summary. 18 (2021).
32. Johnston, S. Building Value Chains for Regionally-Grown and Milled Grains. *N. Y. State Dep. Agric. Mark.* 44 (2012).
33. Brannen, S. *Reviving Grain in the Hudson Valley*.
34. Brozek, K. O. An artisan grain industry takes root in Maine. *The Guardian* (2014).
35. Rukin, B. Celebrating the Real “Angels” in a New Food Economy. *Slow Money* <https://slowmoney.org/blog/celebrating-the-real-angels-in-a-new-food-economy> (2018).
36. About Us - Maine Grains. <https://mainegrains.com/about-us/>.
37. Maine Grains: Rebuilding Maine’s heritage grain industry, one bag of flour at a time. *CEI* <https://www.ceimaine.org/about/cei-stories/maine-grains-2/>.
38. Van Allen, P. Business Leaders: Amber Lambke is breaking bread to grow Maine Grains, and to build a community. *Mainebiz* <https://www.mainebiz.biz/article/business-leaders-amber-lambke-is-breaking-bread-to-grow-maine-grains-and-to-build-a>.
39. Buying Local: A Guide for Retail and Wholesale Buyers. *NC State Extension* <https://content.ces.ncsu.edu/buying-local-a-guide-for-retail-and-wholesale-buyers>.
40. Johnson, R. Seasonal Fruit and Vegetable Competition in U.S.-Mexico Trade. *Congr. Res. Serv.* 3 (2020).
41. Johnson, R. The U.S. Trade Situation for Fruit and Vegetable Products. *Congr. Res. Serv.* 19 (2016).
42. Palmer, B. The C-Free Diet. *Slate* <https://slate.com/technology/2013/07/california-grows-all-of-our-fruits-and-vegetables-what-would-we-eat-without-the-state.html> (2013).
43. Clark, J., Conley, B. & Raja, S. Essential, fragile, and invisible community food infrastructure: The role of urban governments in the United States. *Food Policy* 103, 102014 (2020).
44. *Harvesting Opportunity: The Power of Regional Food System Investments to Transform Communities*. 306 (2017).
45. Regenerative Agriculture. *Seal the Seasons* <https://sealtheseasons.com/pages/regenerative-agriculture>.
46. How Seal the Seasons weaves connections between consumers and local food. *Produce Processing* <https://produceprocessing.net/article/how-seal-the-seasons-weaves-connections-between-consumers-and-local-food/>.
47. Parker, J. Chapel Hill startup Seal the Seasons to take fresh produce to much of US. *WRAL TechWire* <https://wraltechwire.com/2018/07/09/chapel-hill-startup-seal-the-seasons-to-take-fresh-produce-to-much-of-us/> (2018).

48. Seal the Seasons Inc - Certified B Corporation - B Lab Global. *B Corporation* <https://www.bcorporation.net/en-us/find-a-b-corp/company/seal-the-seasons>.
49. Blake, S. Seal The Seasons Connects Local Farmers To Consumers Craving Fresh Produce. *GrepBeat* <https://grepbeat.com/2022/03/15/seal-the-seasons-connects-local-farmers-to-consumers-craving-fresh-produce/> (2022).
50. Seal the Seasons Company Profile: Valuation & Investors. *PitchBook* <https://pitchbook.com/profiles/company/123608-62>.
51. Seal the Seasons, Inc. *Specialty Food Association* <https://www.specialtyfood.com/organization/134739/seal-the-seasons-inc/>.
52. Seal the Seasons Farmer Blends Smoothies. *Progressive Grocer* <https://progressivegrocer.com/seal-seasons-farmer-blends-smoothies> (2021).
53. Cohort 2. *FoodFutureCo* <https://www.foodfuture.co/cohort2>.
54. Impact | Chobani Incubator. *Chobani®* <https://www.chobani.com/impact/chobani-incubator/>.
55. Cooper, D. *Reframing Food Hubs: Food Hubs, Racial Equity, and Self-Determination in the South*. https://www.raceforward.org/system/files/pdf/reports/RaceForwardCSI_ReframingFoodHubsFullReport_2018.pdf (2018).
56. *COUNTING VALUES: Food Hub Financial Benchmarking Study*. <https://nesawg.org/sites/default/files/Food%20Hub%20Benchmarking%20Study.pdf> (2015).
57. 2020: Year In Review. *4P Foods* <https://4pfoods.com/posts/2020-year-in-review/> (2021).
58. *Fruit and Nut Crops*. <https://www.cdffa.ca.gov/statistics/pdfs/2013/FruitandNut.pdf> (2014).
59. Davison, B. OVERCOMING BOTTLENECKS IN THE EASTERN US CHESTNUT INDUSTRY: An Impact Investment Plan. 56.
60. Brainard. *Overcoming Bottlenecks in the Midwest Hazelnut Industry: An Impact Investment Plan*. (2019).
61. Belser, K. Niche Nut Processing Project: Collaborating To Establish Nut Crop Production, Processing And Marketing In The North Central Region - SARE Grant Management System. https://projects.sare.org/sare_project/fnc12-847/ (2013).
62. Industry Applications. *Hammons Black Walnuts* <https://black-walnuts.com/view-nutshell-products/industry-applications/>.
63. Hammons History. *Hammons Black Walnuts* <https://black-walnuts.com/hammons-history/>.
64. The North Carolina Black Walnut Shirt. *Solid State Clothing* <https://solidstate.clothing/products/the-north-carolina-black-walnut-shirt>.
65. Schoeneberger, M. M., Bentrup, G. & Patel-Weynand, T. *Agroforestry: Enhancing Resiliency in U.S. Agricultural Landscapes Under Changing Conditions*. https://www.fs.fed.us/research/publications/gtr/gtr_wo96.pdf (2017).
66. Ajamian, M. ASFC Update: Route 9 Chestnut Cooperative Exceeds 100,000 Pound Harvest. *Rural*

- Action <https://ruralaction.org/news/2021/asfc-update-route-9-chestnut-cooperative-exceeds-100000-pound-harvest/> (2021).
67. Route 9 Cooperative. *Route 9 Cooperative* <https://route9cooperative.com/>.
68. Miller, M. *et al.* Growing Midwestern Tree Nut Businesses: Five Case Studies. 31.
69. Georgia Pecans and New Communities Making a Difference – Happy Dirt. <https://happydirt.com/2020/12/georgia-pecans-and-new-communities-making-a-difference/>.
70. *THE BACKSTORY: Historical Background for Events Featured in Arc of Justice*. https://static1.squarespace.com/static/574610bb20c647ad3c3c2daf/t/583c8c659de4bb595172a9b2/1480363113503/AoJ_backstory_v4a.pdf,%206.
71. Canon, C. *et al.* *Steward-Ownership: Rethinking ownership in the 21st century*.
72. St. Onge, J. *Vermont Food System Plan Issue Brief: Access to Capital*.
73. Held, L. Food Distribution 101: What Happens When the Food Supply is Disrupted by a Pandemic. *Civil Eats* <https://civileats.com/2020/04/15/food-distribution-101-what-happens-when-the-food-supply-is-disrupted-by-a-pandemic/> (2020).
74. Integrated Capital. *RSF Social Finance* <https://rsfsocialfinance.org/vision/how-we-work/integrated-capital/>.
75. Arkansas Co-op Shifts Status Quo in Livestock Farming. *RSF Social Finance* <https://rsfsocialfinance.org/2017/11/14/arkansas-co-op-shifts-status-quo-in-livestock-farming/> (2017).
76. A Hub for Bakers, Farmers & Researchers. *RSF Social Finance* <http://rsfsocialfinance.org/2018/05/10/a-hub-for-bakers-farmers-researchers/> (2018).
77. Why we invested in Cairnspring Mills. *Mission Driven Finance* <https://www.missiondrivenfinance.com/portfolio/cairnspring-mills/>.
78. Growing while staying true to radical roots. *RSF Social Finance* <https://rsfsocialfinance.org/2016/11/15/growing-staying-true-radical-roots/> (2016).
79. Organically Grown Company Pioneers Groundbreaking Ownership Structure to Maintain Mission & Independence in Perpetuity. *RSF Social Finance* <https://rsfsocialfinance.org/2018/07/09/organically-grown-company-pioneers-groundbreaking-ownership-structure-to-maintain-mission-independence-in-perpetuity/> (2018).
80. Organically Grown Company's Groundbreaking Move to New Ownership Structure. *RSF Social Finance* <http://rsfsocialfinance.org/2018/10/31/organically-grown-companys-groundbreaking-move-to-new-ownership-structure/> (2018).
81. Food Supply Chain Guaranteed Loan Program. *Rural Development* <https://www.rd.usda.gov/food-supply-chain-guaranteed-loans> (2021).
82. Rittner, T., Rowland, A. & Miller, A. *Food Systems & Access to Capital*. (2019).
83. Matta, J. V. & Angelo, B. *COLORADO FOOD SYSTEM INFRASTRUCTURE ASSESSMENT*. (2021).

84. Buying our Building. *CommonWealth Kitchen* <https://commonwealthkitchen.org/about/buying-our-building/>.
85. Commonwealth Kitchen Purchases Our Home. *CommonWealth Kitchen* <https://commonwealthkitchen.org/building-purchase/> (2022).
86. Chesto, J. After searching for a new home, Commonwealth Kitchen works out deal to stay put in Grove Hall - The Boston Globe. *The Boston Globe* <https://www.bostonglobe.com/2021/07/22/business/after-searching-new-home-commonwealth-kitchen-works-out-deal-stay-put-grove-hall/> (2021).
87. Chesto, J. After years of work, Jen Faigel secures a forever home for Commonwealth Kitchen. *The Boston Globe* <https://www.bostonglobe.com/2022/02/28/business/after-years-work-jen-faigel-secures-forever-home-commonwealth-kitchen/> (2022).
88. Bouri, A. & Abhilash, M. *Catalytic First-Loss Capital*. <https://missioninvestors.org/sites/default/files/resources/CatalyticFirstLossCapital.pdf> (2013).
89. Flexible Capital Fund - Financing. *Flexible Capital Fund* <https://flexiblecapitalfund.com/financing/>.
90. Equitable Food & Farm Financing: Redefining Risk and Reducing Barriers to Capital Access. (2020).
91. Sloss, E. & Jackson, Dr. K. Increasing Access to Capital for Healthier, More Equitable Food Systems. <https://www.self-help.org/updates/sh-blog/blog/2021/06/25/increasing-access-to-capital-for-healthier-more-equitable-food-systems> (2021).
92. Wozniacka, G. Poor Conditions at Meatpacking Plants Have Long Put Workers at Risk. The Pandemic Makes it Much Worse. *Civil Eats* <https://civileats.com/2020/04/17/poor-conditions-at-meatpacking-plants-have-long-put-workers-at-risk-the-pandemic-makes-it-much-worse/> (2020).
93. Goldman, S., Aspenson, A., Bhatnagar, P. & Martin, R. Essential and in Crisis: A Review of the Public Health Threats Facing Farmworkers in the US. *Center for a Livable Future* <https://clf.jhsph.edu/publications/essential-and-crisis-review-public-health-threats-facing-farmworkers-us> (2021).
94. Aguilar, K. *et al.* Equitable Food-Oriented Development. *EFOD Collab*. 16.
95. Storton, M. Hard truths from a decade of investing in regional food systems | GreenBiz. *GreenBiz* <https://www.greenbiz.com/article/hard-truths-decade-investing-regional-food-systems> (2020).
96. The EFOD Fund | Equitable Food Oriented Development. *EFOD* <https://efod.org/fund/> (2021).
97. Kresge partners with EFOD Collaborative to award \$1 million for Equitable Food Oriented Development. *Kresge Foundation* <https://kresge.org/news-views/kresge-partners-with-efod-collaborative-to-award-1-million-for-equitable-food-oriented-development-efforts/> (2022).



CROATAN
INSTITUTE