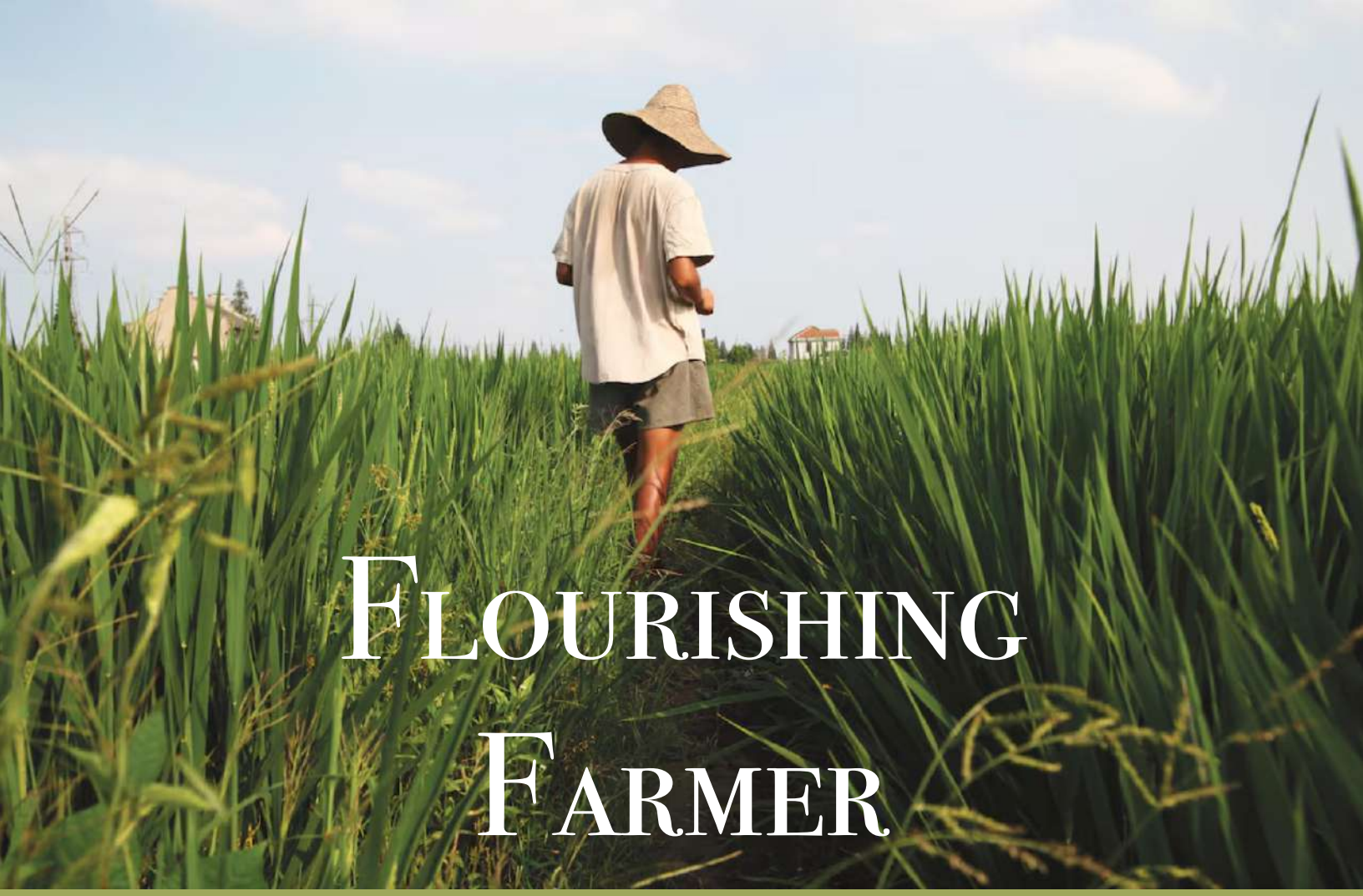

Flourishing Farmer

Business Models for Regenerative Agriculture

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Table Of Contents

Preface

This report is a product of curiosity of three UC Berkeley MBA students passionate about food systems transformation. We interviewed more than 30 diverse stakeholders, including farmers and investors; visited multiple regenerative farms; and reviewed dozens of studies, reports, and podcasts to learn about the current state of regenerative agriculture and identify what our contributions could look like both within the scope of this study and beyond. By showcasing successful and inspirational stories from the field, this paper aims to share what we have learned and add to the existing wealth of resources. This paper should be valuable for anyone who wants to learn more about regenerative agriculture and explore impactful examples of flourishing farm business models. We hope that there is something in it for consumers, farmers, investors, food companies, and policymakers.

- The ***Introduction*** summarizes some crucial topics and debates we have witnessed within the space, including the benefits of regenerative farming and the complications of defining regenerative agriculture.
- The ***Regeneration Stories*** section presents five in-depth case studies of viable farm businesses: a local community-rooted farm, a medium-sized vertically-integrated regional farm, a regional food hub, a national marketing coop, and a farmland investor. Each organization has a different theory of change, business model, scale of operations, and definition of regenerative agriculture — and yet each brings a unique contribution to the common goal of creating a better food system.
- The ***Appendix*** offers a curated library of resources that we found helpful in our research, and used to build our work.

Acknowledgments

We would like to express our gratitude and appreciation for our faculty sponsor, Will Rosenzweig, our project advisors, Nahar Neta, Dawnelise Regnery Rosen, and Catha Groot, for their perspectives, challenging questions, and insightful comments, and our editing and design partners, Laïla Scala, Pilar Ceniceroz, and Megan DiTrolio. Our project would also be incomplete without the voices of our interview subjects for the five "regeneration stories": Emma Jagoz (Moon Valley Farm), Dylan Stein (FEED Cooperative), Bryce & Brita Lundberg (Lundberg Family Farms), Wade Miller and Jaclyn Cardin (Organic Valley), and Amanda Zakharov (Dirt Capital Partners), who provided context, stories, and data that enriched our case studies. We are also grateful to Sarah Day Levesque (RFSI) for her thoughtful review and feedback, which helped us improve the report in valuable ways. Our study was informed by a wide group of stakeholders and experts across the food and investment community, to whom we offer our sincere thanks: Ashley Boran, Sara Olsen, Neil Rudolph, Karen Ross, Kyle Rudzinski, Gina Nagel, Sara Clow, Rob Hurlbut, Tim Bowles, Tom Newmark, Oscar Chavez, Paul Shoemaker, Anthony Corsaro, Brandon Welch, Douglas Gayeton, David LeZaks, Tim Barakett, Katherine Pease, and Rob Trice.

Introduction

Imagining a Better Food System

It has long been clear that there is something profoundly wrong with our food system. Food production is responsible for 26% of greenhouse gas emissions[1], poor diet is linked to 10,000 weekly deaths in the United States and $1.1 trillion in annual healthcare spending[2], and the majority of U.S. farmers cannot make ends meet, living in poverty.[3] These are just a few examples. Largely, these problems are driven by the industrialisation of the agricultural system, which has prioritized yield and efficiency over ecosystem, human, and community health. Decades of extractive food production highly dependent on farmer and animal exploitation, synthetic inputs, monocropping, and other harmful practices have exhausted natural resources and robbed communities of healthy food and equitable livelihood.

The system does not have to be this way, though. Thousands of farmers, scientists, brands, investors, and policymakers are joining forces under the umbrella of "regenerative agriculture" to propose a better alternative to conventional agriculture. Deeply rooted in the wisdom of Indigenous communities, regenerative agriculture strives to restore the health of the Earth and its inhabitants. Even though the term "regenerative" gained a tangible presence in the news sphere relatively recently, a lot of meaningful work and research has been conducted to prove its real benefits. Regenerative farming can restore soil health, create more resilient and biodiverse ecosystems, address climate change, yield higher quality and more nutritious foods, and improve farmers' livelihoods. SLM Partners have done an extensive survey of existing studies exploring the integrated benefits of regenerative agriculture that we highly recommend reviewing for more data and stories.

As hopeful as it may sound, there are still significant barriers to the broad adoption of regenerative farming because the current system is tailored for conventional agriculture on multiple levels. First, many financial incentives are still set up to support industrial agriculture. The $12-14 billion yearly federal expenditures in the form of Agricultural Risk Coverage, Price Loss Coverage, and crop insurance subsidies mainly support large-scale conventional farmers, with 70% of subsidies flowing into monocrop production systems.[4] Agricultural loans and insurance policies incentivize short-term optimization for payouts and high input usage for de-risking.[5] Second, there is still no mechanism in place to account for the immense hidden costs stemming from the current food systems' impact on human health, the environment, and social and economic inequity. The Rockefeller Foundation estimates that the true cost of food is at least three times higher once various negative externalities are internalized in the price.[6] As a result, conventional food costs less than it should, while regenerative and organic food is wrongly perceived as inherently unaffordable and, therefore, unattractive for most consumer packaged goods companies (CPGs), processors, retailers, and end consumers. In addition, the transition to regenerative agriculture on the farm requires technical expertise, a significant change of practices, and initial investment. Farmers, who often live from harvest to harvest, perceive any significant change on the farm as high risk to their yields and hence hesitate to transition — despite an emerging understanding of long-term improvement in profitability during and post-transition via lower dependence on expensive inputs, higher resilience to climate change and severe weather conditions, and higher control over price.[7]

Speaking the Same Language

"Regenerative" is increasingly being used to describe an agricultural system that opposes conventional production and aims to right its wrongs by restoring ecosystems, public health, and community well-being. While the word "regenerative" itself can be defined as "tending to or characterized by regeneration or the renewal or restoration of things," there is no singular agreed-upon definition for regenerative agriculture—and there are ongoing debates as to whether one is even needed or possible. Universally accepted terminology will help avoid confusion among farmers, consumers, policymakers, and investors, protecting the field from greenwashing and misalignment. At the same time, there is a real challenge of accounting for all the complexities of context-based agricultural systems and building in enough flexibility for farmers to benefit from having one universal definition.

Most organizations adopt or develop definitions suitable for their needs or beliefs, and we have observed the following key debates:

Is Regenerative an Extension of Organic?

The organic movement has been crucial in educating consumers on the negative externalities of conventional ag and creating an incentive system for farmers to decrease dependence on harmful practices, like using synthetic inputs. Because of rigorous requirements and focus on building soil health, multiple organizations believe that organic should be the starting point of regenerative. For example, Regenerative Organic Alliance, formed by Rodale Institute, a leading think tank in organic agriculture, and Patagonia Provisions and Dr. Bonner, brands focused on creating markets for regenerative agriculture. Their Regenerative Organic Certification builds on top of organic and extends to include the well-being of animals and farmers. For lack of a universal definition, many farmers use the two terms interchangeably, and often choose to add more "regenerative" elements to their organic practices (like minimal or no tillage that is not required by organic certification). On the contrary, some stakeholders have raised concerns about the complexity, high cost, and inflexibility of obtaining organic certification, especially for smaller farms, and propose to keep the two seperate.

Scope and Focus of Definition

While regenerative agriculture is, at its core, a land management system focused on improving soil health, regeneration implies many other important aspects for ecosystem, human, and community well-being. The scope of inclusion and focus of frameworks offered vary depending on a given organization's mission statements and practical needs. For example, Mad Agriculture extends a holistic and almost philosophical definition, highlighting the importance of "true wealth" generation for all, while some organizations choose to offer more targeted definitions, e.g., Regenefied focuses exclusively on farming practices and their outcomes for the natural ecosystem. A notable tendency is a focus on the climate component — for example, one commonly used alternative for "regenerative" is "climate-smart agriculture." Defined by The Food Organization of the United Nations and popularized in the U.S. by the U.S. Department of Agriculture, it aims to "increase or maintain yield, enhance resilience to environmental changes and reduce GHG".[8] Many stakeholders in the field perceive the carbon sequestration potential of regenerative agriculture as its key benefit and turn to carbon credits as a potential tool to finance the transition. However, this may prove to be too narrow of a definition or focus, as there are still debates about how much carbon the soil can actually sequester, how to measure it cost-efficiently and precisely, and how to guarantee permanence.

Practice-based vs. Outcomes-based

Some definitions of regenerative agriculture focus on practices like cover cropping, no-till, composting, planned grazing, and crop rotation (e.g., ROC's framework is, by and large,practice-focused). There are some programs in place to incentivize these practices, e.g., the U.S.D.A.'s Cover Crop Initiative.[9] A complication with this approach is the place-based nature of farming — unique factors at each farm, such as micro-climate and type of crops grown, affect the applicability of different practices and their combinations. Another approach is to focus on the outcomes and measure soil organic matter, carbon, water infiltration, and other crucial metrics to track progress and level of regeneration. One example is Savory's Ecological Outcome Verification, which measures indicators for water and mineral cycles, energy flow, and ecosystem community dynamics. For many capital allocators, having means to track and measure impact is crucial. Multiple organizations are developing solutions for the measuring, reporting, and verification (MRV) of key outcomes, with a high focus on carbon sequestration. Yet, MRV still possesses many challenges, due to both the high cost of implementation and complications with the robustness of methodologies. Multiple blended frameworks that take the best from practice and outcomes-based approaches appear in the market as a reaction to above mentioned considerations (e.g., Soil Regen).

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For the purpose of this report, we adopt a high-level definition of regenerative and think about it in opposition to the conventional system and its externalities. The different farmers we spotlight each have his or her own conception of what regenerative means. Several farmers in our dataset choose not to label as regenerative and instead root their practices in U.S.D.A. Organic Certification requirements. Some focus on rigorous impact measurement and reporting. All strive to make a difference in how land is managed and what co-benefits farming brings to all. Ultimately, we believe nothing speaks better than an image of a healthy and flourishing farm.

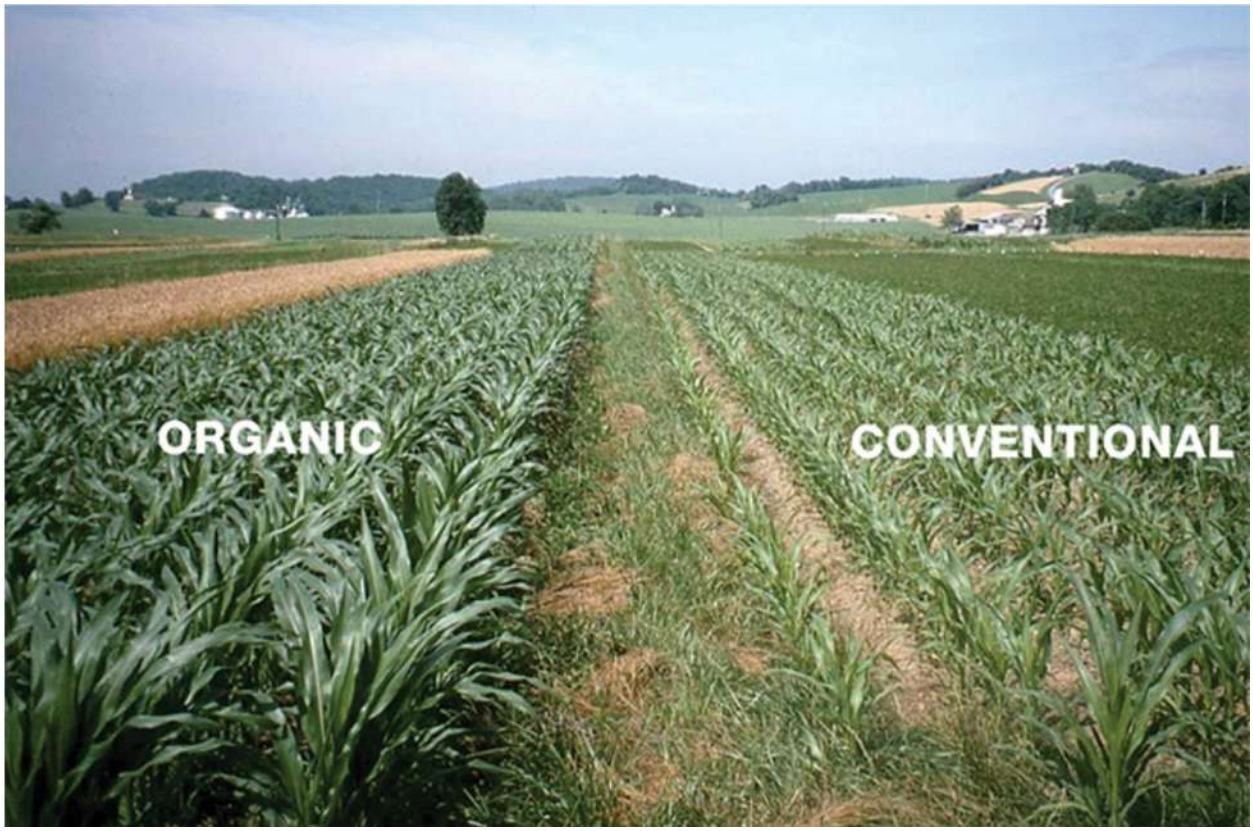

Image credit: Rodale Farming System Trial

Regeneration Stories

Biodiversity of Models: From Farmpreneurs to Real Asset Managers

This report presents 5 diverse business models — from smaller, farmer-driven operations to cooperatives and farmland investors — all united by a shared goal to farm better, and a successful track record of doing so. We embrace the complexity of the food system and do not strive to provide a complete analysis of the entire landscape and/or all the answers to how to fix the system. Instead, our goal is to share stories that inspire our readers to explore and get involved.

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One of the biggest tensions is whether the path to a better food system lies through local/regional or scaled/national models. Proponents of local food systems champion the virtues of directly connecting with farmers, fostering community ties, and building resilience against disruptions like those witnessed during the COVID-19 pandemic. Others argue that the only way to achieve tangible impact, unlock the transition, and make regenerative food price-competitive is through scale and efficiency — especially in the light of aging farmer populations and unsettling farmer profit statistics. In the same way that regenerative agriculture values biodiversity in ecosystems, we need to welcome the biodiversity of theories of change that different farmers,

educators, investors, policymakers, and food companies bring to the table. The reality is that no single solution can be applicable across the plethora of existing contexts, and different models will make their unique contribution to the shared goal of turning conventional agriculture obsolete. It is crucial that any proposed model is equitable at heart, working towards elevating people rather than replicating the existing extractive systems under the guise of sustainability. Regeneration is about mending our relationship with the Earth, and this cannot be done at the expense of the people who tend the land.

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These different models require different enablers across the value chain, which we will touch upon in the final section of this report. One of the key obstacles to regenerative transition is the lack of appropriate resources, especially capital ones, to support it. While select trailblazing investors and brands understand the value of regenerative farming, there is still a lot of confusion among resource allocators who are less specialized, those who may still question the business case and feel alienated by the level of technical expertise required to understand the field.

With these case studies, we hope to make a contribution to debunking some myths about the financial sustainability of regenerative farms and showcase viable examples that could help model future projects. We view this work as additive to some other case studies libraries prepared by organizations like Croatan Institute and Understanding Ag. That said, we would like to acknowledge the context-specific nature of agriculture and emphasize that we are not striving to generalize. We collect stories across different crop and animal production systems, geographies in the U.S., and definitions of regenerative — not to juxtapose and compare but to present a diverse set of examples and share stories of impact.

Case Study 1: Moon Valley Farm

Farming Locally & Organically as an Entrepreneur

Year Established: 2012
Crop Focus: Vegetables & Herbs
Type: Family-owned Farm
Size: 70 acres
Location: Maryland

Though Americans love to romanticize the idea of small family farms selling directly to their local communities, the reality is quite different. Today, only 6% of U.S. farms sell their crops directly to consumers[10], and on average, fresh produce travels over 1,500 miles before being consumed[11]. "Farmers make 14.5 cents for every dollar of their produce sold, down from 40 cents in 1970"[12]. The true American food system, which predominantly relies on the centralized conventional value chain, is not set up to support the small family farm. Approximately 64% of small family farms (those with $350,000 or less in gross cash farm income) have operating margins below 10% and are considered high-risk by the U.S.D.A. For comparison, only 27% of large scale farms had margins below 10%[13]. The American farmer is becoming an endangered identity, with one in three farmers planning to retire in the next decade[14]. Logically, the next generation of would-be farmers are cautious—seeing large upfront expenses, little to no operating profit, and a lifestyle that requires them to live in rural areas with few days off. According to one farmer we interviewed, "farming has a massive image problem. Nobody wants to be a farmer."

"Farming has a massive image problem. Nobody wants to be a farmer."

Emma Jagoz's Perspective on Farming

With the cards stacked against independent farmers, what could the next generation of successful farmers look like? The following case study highlights Emma Jagoz, a first-generation female farmer based in Maryland, and her stakeholder-focused approach to farming.

Jagoz's farm, Moon Valley Farm, has been in operation for thirteen years, and in that time has grown from 0.5 leased acres to 70 owned and leased acres. Jagoz found her way into farming as a new mother trying to improve the nutritional composition of her diet. All of her acres are Certified Organic or in transition, a trait that she believes is vital to achieving the deserved price premium for the approaches her farm takes: stewarding the soil toward its ideal health by balancing the extractive nature of growing food with farming practices that input nutrients back into the

soil. When asked whether she considers her farm regenerative, Jagoz shared, "Right now I steer away from the term regenerative because it doesn't have a universal meaning or even a regional or national definition… though I do believe that many of the principles of organic are inherently regenerative."

Moon Valley Farm grows over forty different types of crops and continues to diversify its crop list, especially when it's possible to include more cover crops like grains, beans, legumes, and sunflowers. She aims to limit the harvesting of cash crop to once per year on each parcel whenever possible, acknowledging that while she could harvest more frequently, it would be more extractive than she is comfortable with.

Winning with a Year-round Sustainable Business

Moon Valley Farm distinguishes itself from other farms in a variety of ways, all stemming from a prudent business decision to prioritize stability and predictability over the course of the entire year. First, the farm operates a year-round CSA, which is their most profitable channel, in addition to selling to over 100 schools and high-end restaurants. Jagoz mentioned that the practice of growing year-round is unique in her geographic area, and it requires more infrastructure in the form of high tunnels and greenhouses. Because of the year-round nature of the work, Moon Valley also has twenty full-time employees on payroll. Year-round employment is great for the employees and the farm, as it lowers onboarding and turnover costs. Moon Valley Farm provides benefits to its employees, a perk taken for granted in many industries but afforded to fewer than half of U.S. farmworkers[15], including two days off in a row (either Friday / Saturday or Saturday / Sunday). To minimize weekend labor, Moon Valley Farm does not participate in farmers markets. Jagoz was also not shy about sharing that she has had to prioritize paying herself more than other farmers because of her personal circumstances: She's a single parent, getting 100% of her family's income from the farm, and she's not inheriting family land. She credits this need for financial profitability with her ability to run an efficient and effective business, and she passionately advocates for other farmers to pay themselves and take time off. As a profitable business, Moon Valley Farm is proving that farm owners can treat their land, employees, and themselves with respect and still have a successful business.

Making Organic Produce Affordable Through Partnerships

Jagoz acknowledges that, for now, organic food farmed by independent farmer-entrepreneurs will be priced at a premium. Rather than trying to achieve price parity in a system that's set up to incentivize low- cost production of conventional crops, Jagoz shared that her farm partners with 4-6 different nonprofits that work to get food to local food-insecure communities. Via food donations and a donation subscription CSA box, Jagoz increases the impact of organizations feeding their own communities. She also works with gleaning organizations to offer gleaning opportunities when her own labor force can't afford to pick all of the food on the farm. Finally, she shared that while she is interested in becoming a SNAP vendor, it's currently unfeasible due to the online nature of her CSA business.

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Conclusion

As a profitable farm relying on minimal outside grant funding and no outside investment, Moon Valley Farm feels like an inspirational "David" in a world of "Goliath" large-scale industrialized farming operations. When considering the scalability of Moon Valley Farm, Jagoz believes there is a real opportunity to feed the world via "medium-sized organic farms" that focus on food production rather than commodity crops. Medium-sized farms allow for some level of consolidation where not every farmer needs to run their own business. Per Jagoz, "people that don't want to own their own business should be able to get a job as a farmer and have that be a respectable career opportunity… firefighters don't need to own the firehouse. Many times, the skill sets required to be a good farmer and a good business person aren't overlapping skill sets." Jagoz also strongly believes that in order for this model to work, farmers need to prioritize people, including themselves. Ultimately, this model is replicable, but the recipe for success is tricky: it requires a strong farmer at the helm, someone who is willing to take risks, treat themselves and their employees with dignity, and steward the land with care.

Case Study 2: FEED Cooperative

Unlocking New Distribution for Small Farmers & Feeding Communities Healthy Food

Year Established: 2011
Crop Focus: Produce
Type: Farmer & Worker-owned Food Hub
Size: 50+ farms
Location: Northern California

One of the largest challenges small farmers face is marketing their products. They need to identify who to sell to, and through what channels, while managing the time, energy, and resources that each channel requires. Participating in farmers markets can be time-intensive, but oftentimes, it is the only option for an individual farmer whose production volume is lower than the threshold required to participate in wholesale markets. To help small farms more easily and efficiently access markets, regional food hubs have emerged around the country.

The U.S.D.A. defines a food hub as "a business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand"[16]. Regional food hubs can offer a wide range of services (see figure 1). Still, the most important one is the aggregation and distribution of produce from small farms that otherwise would face too large of a burden in running a thriving direct-to-consumer CSA program, or struggle to sell into wholesale markets like grocery stores, hospitals, schools and food banks. Food hubs can utilize a wide range of legal structures that help inform their purpose: In 2021, 52% of food hubs were nonprofit organizations, 13% were cooperatives, 30% were for-profit organizations, and 5% were categorized as other[17].

There are three main types of food hubs: 1) primarily direct-to-consumer (DTC), which act as an intermediary between consumers and farmers in order to maximize offerings for consumers and profits for farmers (42% of all food hubs in 2021[18]); 2) primarily wholesale, which focus more on retailers, restaurants and institutional buyers, and tend to have higher operating costs (20%); 3) hybrid, which blends both approaches (38%). While the average DTC food hub can break even with $314,000 in annual sales, the average wholesale food hub requires closer to $1,200,000 in annual sales to account for value-added processing, paid labor, and distribution.

In order to better understand how food hubs might further a regenerative future, we spoke with a representative from FEED Sonoma.

FEED Cooperative Business Model

Founded in 2011 as a for-profit food hub, FEED Sonoma now operates as a farmer- and worker-owned cooperative (co-op) representing farmers in California's North Bay. FEED Sonoma is a relatively large operation by food hub standards, with $4.9M in revenue in 2023. Per the organization, they are "committed to building the local food system towards a more transparent and ecologically-driven commerce space where the purchasing power of the customer is a direct investment into a farm-centered food system." FEED works with over 80 small farms (typically 5-10 acre farms) throughout the year, 30 of which are producer members who actively participate in setting the cooperative's strategy. Co-op members benefit from getting to vote on the direction and partaking in profit sharing during profitable years. FEED's main activity is finding outlets for farmers to sell goods. They have had success partnering with multi-location natural grocery outlets such as Oliver's Market and Good Earth Natural Foods, farm-to-table restaurants, and institutional partners like tech corporations, school districts, and food banks. FEED is a hybrid wholesale and direct-to-consumer food hub, with 80% of food moving through wholesale markets and the remaining being sold through the FEED Bin. FEED Bin customers can subscribe to weekly produce boxes or purchase à la carte from the online store.

FEED Cooperative's Approach to Regenerative Agriculture

While FEED Sonoma only works with farmers who adhere to their values of land stewardship, they do not require one unified certification for all their members. They look for farmers who are committed to improving the soil through crop rotation, cover crops, and mindful and minimal tilling. Their farmers "tend their watershed and care for their bio-region through thoughtful water usage, integrative pest management, and clean, safe growing practices." While many farmers choose to get organic, regenerative, or biodynamic certification, FEED Sonoma does not require their members to be certified. Instead, FEED operates on a guiding principle of "know your grower," leveraging the fact that all member farms must be located in Sonoma and Marin counties. When a farmer does not have a certification, members of FEED's staff personally visit the farm to vet their practices. Trust and direct relationships end up being a crucial element in the member selection and collaboration process.

FEED Sonoma Photos by: Kelsey Joy Photography

Promise of Food Hubs to Support Thriving Regional Economies

From an environmental perspective, regional food hubs excel in reducing transport distance as well as food waste. The majority of farms that partner with regional food hubs are located within a 100-mile radius,[19] as contrasted with the 1,500+ miles that food travels in the conventional system. Because of the shorter distance traveled, food is less likely to rot during the transportation process. Food hubs also have a high propensity to donate unsold food and compost any remaining inedible food, thereby further reducing food waste. Because regional food hubs are centered around their local farmers and communities, there is a higher level of accountability along the value chain to respect and honor the food. Because food hubs establish deep relationships with the farmers they work with, they are able to verify that farmers use practices that align with environmental restoration rather than degradation, irrespective of whether the farm is actually certified organic or regenerative.

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From a social perspective, food hubs support the growth of local farm businesses, and, as a result, the local economy. A U.S.D.A. Economic Research Service report found that "producers in the local food supply chain received a greater share of the retail price than they did from a mainstream food supply chain, with producer net revenue per unit in local chains ranging from roughly equal to more than seven times the price received in mainstream supply chains."[20] In addition to the increased share per dollar that goes directly to the farmer, food hubs can help farms increase sales through the markets they expand access to. Anecdotally, we heard from FEED that the sales growth of their member producers outpaced that of their non-members by ~25%. Finally, both farm

owners and farm workers in cooperative models like FEED have the ability to participate in profit sharing, granting them access to an upside that doesn't exist in the conventional food supply chain.

Every dollar that goes to supporting the small farm and its workers is a dollar that stays in the local economy, rather than that dollar flowing through to large conglomerates in the conventional value chains.

Beyond the benefits that accrue to the member farmers, food hubs create employment themselves, creating on average 12 paid jobs per food hub. Regional food systems, bolstered by food hubs, can also increase resilience in our food chain. The conventional food system also poses national security threats, with the U.S. importing more food than it exports, as of 2019[21], and with farm and food processing continuing to consolidate (for example, just 50 meatpacking plants are responsible for as much as 98% of slaughtering and processing beef in the U.S.[22]). Arguably every American was affected by the vulnerability of the food supply chain during COVID-19, and while the conventional system continues to prioritize centralization, food hubs are willing to invest in regional infrastructure to store, process, and transport food locally.

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Conclusion

FEED exemplifies the possibility of thriving regional food systems in that it operates profitably, helps farmers access markets, and promotes sustainable practices. By extrapolating FEED's model out to the ~200+ food hubs across the country, we can see that the benefits of regional food hubs are plentiful, both in their own right and in supporting the vitality of small farms. This model poses a promising alternative to the current conventional food system across many dimensions. Yet, one potential piece of criticism of this model is its heavy reliance on outside sources of public or philanthropic capital: in 2021, over 50% of 66 surveyed food hubs received federal government funding and/or donations from individuals. In addition, 70% of 81 surveyed food hubs shared that they are somewhat or highly dependent on grant revenue. With that said, 91% of 74 surveyed food hubs reported breaking even or better in the 2020 calendar year[23], accounting for the non-sales revenue they were able to access. This situation is probably symptomatic of the high degree of aggregation in the food system, which makes it challenging for any small business to gain competitiveness. So, while the systematic challenges prevail, food hubs can still thrive and support local farmers and communities, benefiting from a nonprofit status and non-sales revenue to offset the scale advantages of the bigger food distributors.

Case Study 3: Lundberg Family Farms

Defining Regenerative Organic for California Rice

Year Established: 1937
Crop Focus: Rice
Type: Family-owned Farm
Size: 15,000 acres
Location: Northern California

The U.S.D.A. categorizes family farms by size based on gross cash farm income (GCFI): small family farms are those that have a GCFI below $350,000, medium from $350,000 to $999,999, and large-scale from $1M and above. Large farms constitute only 2.8% of U.S. farms by count, operate 19.6% of land, and generate 45.9% of total production value. Approximately 40% of these farms enjoy healthy operating margins above 25%.[24] These farms represent a sizable opportunity for impact, yet many choose to stick to conventional farming due to historic choice, lack of technical expertise or belief in regenerative agriculture benefits, or low demand from their processing, CPG, and retail customers. In an effort to impact these barriers, it is essential to explore examples of large farms that have managed to build both strong businesses and healthy ecosystems on their land. Vertical integration is one potential pathway to gain higher margins while keeping control of the product and the narrative and educating consumers on the benefits of "unconventional" farming.

Rice-Obsessed since 1937

Lundberg Family Farms is a fourth-generation, 15,000-acre California organic rice farm. One of the founding brothers, Albert Lundberg, coined the farm's motto: "Leave the land better than you found it. "Ever since, the farm has been a pioneer in soil protection: In the early '40s the farmers started incorporating rice straw into the fields instead of burning it — long before policymakers curbed the practice; in the late '60s they were trailblazers in organic brown rice farming and helped shape standards for the industry; and now they are on the journey of defining and scaling "regenerative" California rice. They chose to grow steadily, with internal resources, and never raised money from investors; each new generation brought in innovation and helped the business scale to a nationally distributed brand. The family has also always believed that rice does not have to be a commodity and that the consumer deserves access to the highest-quality product. Their business has been rooted in developing direct relationships with their consumers, distributors, and retailers, showing people where their food comes from. The DNA of their brand is showcasing and celebrating a real family and a real farm.

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Defining Regenerative Organic Rice in California

The Lundbergs have been dedicated to organic agriculture for half a century and believe organic farming should be a foundation for regenerative agriculture. For this reason, they eagerly engaged with the Regenerative Organic Alliance to work together on defining the expectations and definition for Regenerative Organic rice. The Farm is now committed to certifying all of its crops as Regenerative Organic Certified by 2027. The Lundbergs do not have to change much about their operations, though, as they have always farmed "regeneratively" with a large focus on soil health and the well-being of the ecosystem. Their approach to regenerative is practice-based: They believe that processes produce outcomes and voice concerns over using a limited set of outcome-focused metrics to guide the definition of regenerative. The Lundbergs never use synthetic fertilizers and herbicides, practice cover cropping and chicken litter application, and extensively focus on water management and building wildlife habitats. One practice they are particularly proud of is egg rescue. Because they plant winter cover crops, ducks have a habitat to nest, and the farm team collects the eggs from the fields by hand and carries them to safety. In doing so, they have rescued 30,000 duck eggs over the years.

Ducks have become the farm's mascot and a meaningful way to connect with consumers about regeneration. There is a strong need for powerful and yet simple messaging to educate more people, and many brands are still struggling to find the right way to clearly communicate the complexity of the relationship between on-farm practices and ecological, social and human health. It is crucial to get consumers on board before explaining the more technical and complex aspects of regenerative farming, such as soil health or carbon sequestration. The Lundbergs have found their unique approach to delivering the message in a relatable and accessible manner. Ducks are an attention-getter that helps build an emotional connection with the brand. Once the consumer is involved, the Lundbergs takes them further to explain the holistic benefits of regenerative via information on their packaging and website. Authenticity in everything they do helps them stand out. Moreover, as a relatively small brand compared to big CPGs, Lundberg doesn't have a sizable marketing budget to educate consumers, so support from the retail ecosystem in communicating the benefits and showcasing regenerative brands has been crucial for the Lundbergs in driving their Regenerative Organic message further.

Vertical Integration for Best Product Offering

Today, Lundberg Family Farms is a fully vertically integrated business: They grow, aggregate, process, market, and sell their products. The first step to integration was taken by the first generation when Albert Lundberg built the farm's first rice dryer to better preserve the crops. In the late sixties, the second generation built a rice mill to process the newly planted organic crops and offer their consumers farm-to-table organic rice. In 1972, the Lundbergs began to sell their rice under their name, and a decade later, they set up a production line for making rice cakes. The integration process has always been driven by "an obsession with rice" and a desire to offer their consumers superior, high-quality products.

The Lundbergs currently grow 17 rice varieties and continuously experiment with breeding new ones for compatibility with regenerative practices and their consumers' delight. Most of their land is owned by the family, but they also take on 5-10-year leases when needed for expansion, as the cost to buy new land is often prohibitively high. The family grows approximately 50% of the rice that goes to their products and partners with nearby small family farmers, whom they have known for decades, to source the remaining quantities to satisfy the demand for their end product. As a result, the Lundberg operation plays a critical role in helping small regenerative farmers access markets, which, as discussed in case-study 2, is a big need.

Their specialty rice tends to be smaller than conventional grains usually grown in California, so it is crucial for the family to own and set up their own rice drier in a way that suits their varieties best. They still use the mill built in the sixties, make their own rice cake machines for the best product quality, and own a "rice-in-a-box" line to produce their entrees SKUs. A team of approximately 400 people support the operation, with approximately 300 involved in operations and 100 supporting administrative and sales work. The Lundbergs are committed to social fairness as part of their regenerative philosophy. On the community side, Lundberg Family Farms supports local food banks, shelters, nonprofits and more, and donated 22.6 tons of food in 2023. On the team side, Lundberg is committed to paying above minimum wage, provide safe working conditions and access to healthcare for full-time employees, and offer educational and growth opportunities.

Conclusion

Lundberg Family Farms showcases the importance of authenticity and building strong networks across the food value chain to achieve economic viability while stewarding the land. The complexity of their operations, on the one hand, significantly drives overhead costs, but on the other hand, helps build distinction and nourishes a loyal consumer base. Their work helps educate eaters and create markets for regenerative products alongside other insurgent brands. As the Lundbergs aggregate rice from multiple neighboring farms, they also support the local economy and help small farms access these newly created markets. Big enough to have meaningful access to consumers but independent enough to do things their own way, they model an essential pathway for further scaling of regenerative practices and onboarding more people on this journey.

Case Study 4: Organic Valley

Providing Stability to Organic Farmers and Incentivizing Climate-Smart Agriculture as a Marketing Co-op

Year Established: 1988
Crop Focus: Dairy
Type: Farmer-owned Marketing Cooperative
Size: 450,000+ acres (1,600+ farmers)
Location: Across the U.S.

The food and agriculture sector is navigating complex challenges as an increasing number of stakeholders realize the imperative to balance efficiency and large-scale production with environmental sustainability, regional resilience, and fair economic distribution. One actively-discussed solution is agricultural cooperatives. Dating to the 19th century, food cooperatives were originally formed as local general stores where farmers could sell their produce, repair tools, and exchange ideas. Today, cooperatives vary in size and scope, ranging from local Community Supported Agriculture (CSA) groups to multibillion dollar businesses, like Land O' Lakes and Ocean Spray. The core value proposition of a cooperative is simple: the whole is greater than the sum of its parts. By collaborating, farmers can save on costs, secure better prices for their products, and engage with community-minded enterprises. While some view cooperatives as a promising structure for long-term farmer prosperity and sustainable practices, others see them as overly protective of outdated farming methods.

This case study delves deeper into the influence of agricultural cooperatives by focusing on Organic Valley, America's largest organic food co-op and a trailblazer of the organic food movement. Since its inception in 1988, Organic Valley has sought to revolutionize how people think about food and support American family farmers. By nearly any metric, Organic Valley has achieved remarkable success: Over 36 years, it has grown to over $1 billion in annual revenue, includes 1,600 farmer members/owners, and manages over 450,000 acres of organic land. Organic Valley offers more than 100 products, providing organic versions of household staples such as milk, butter, eggs, and cheese.

Improving Farmer Well-being with Income Stability and Decision-making Opportunities

Organic Valley functions as a producer and marketing cooperative, where the member farmers own the cooperative and sell their products to the parent Cooperative Regions of Organic Producer Pools (CROPP), which handles sales, marketing, and distribution of the finished products. The cooperative's governance structure includes a board of farmer-owners elected by their peers. At the beginning of each year, Organic Valley's farmer members collaboratively set the milk prices based on current production costs and a fair return. This model emphasizes price stability, which provides farmers with predictably higher earnings compared to independent farmers selling into organic and conventional markets, which often can be volatile. While Organic Valley occasionally engages in profit sharing during prosperous years, the real benefit to farmers is the stability and enhanced price per gallon they receive.

In any given year, according to Organic Valley, their average operating margin is just about 2%. This is far below the industry average, which is a result of the high prices paid to farmers, and, in turn, lower profit margins for the parent company. According to the executive team, this pricing strategy allows farmers to shift their focus from chasing the best possible prices to optimizing costs and, as a result, to maximize profitability without compromising product quality. This security, or lack thereof for independent farmers, has been posited as one of the primary drivers for farmer stress year over year.[25] By providing price stability, Organic Valley not only helps farmers focus on farming operations but also reduces the emotional burden brought on by price uncertainty.

Since the advent of large-scale conventional agriculture, farming has become an isolated profession. Notably, farmers face a significantly higher risk of suicide, with rates approximately 3.5 times higher than the national average in the United States. This makes it the fourth highest among all occupations for suicide rates.[26] Several factors are posited to underlie this concerning trend, with the isolation experienced in farming and the financial challenges inherent to the profession being among the primary concerns. Recent studies suggest that being part of a co-op may be an important way to combat this growing trend by offering stability, decision-making opportunities, and a platform for social interaction and civic engagement.[27] Additionally, according to the Organic Valley team, their average farmer member age is 8 years less than the national average, 51 and 59, respectively. This may be a positive signal that co-op membership can attract farmers in ways that traditional farming businesses simply cannot. Admittedly, Organic Valley has not conducted farmer happiness surveys to date, but when asked, they said, "It's definitely something we plan to do."

Unlocking the Value from Carbon Projects for Organic Farmers

On the environmental front, Organic Valley actively promotes sustainability through two primary initiatives. First, their commitment to being Certified Organic ensures stringent standards: cows are fed only organic feed free from GMOs and synthetic pesticides and fertilizers; they must have access to pasture for at least 120 days each year; and the use of antibiotics, growth hormones, and GMOs is prohibited. They go beyond Organic Certifications with specific animal husbandry standards that are enforced by a team of internal auditors.[28] This approach has significantly reduced their greenhouse gas emissions — by 25% compared to conventional U.S. dairy averages — and has kept 540,000 pounds of chemicals off the land since 1988.[29]

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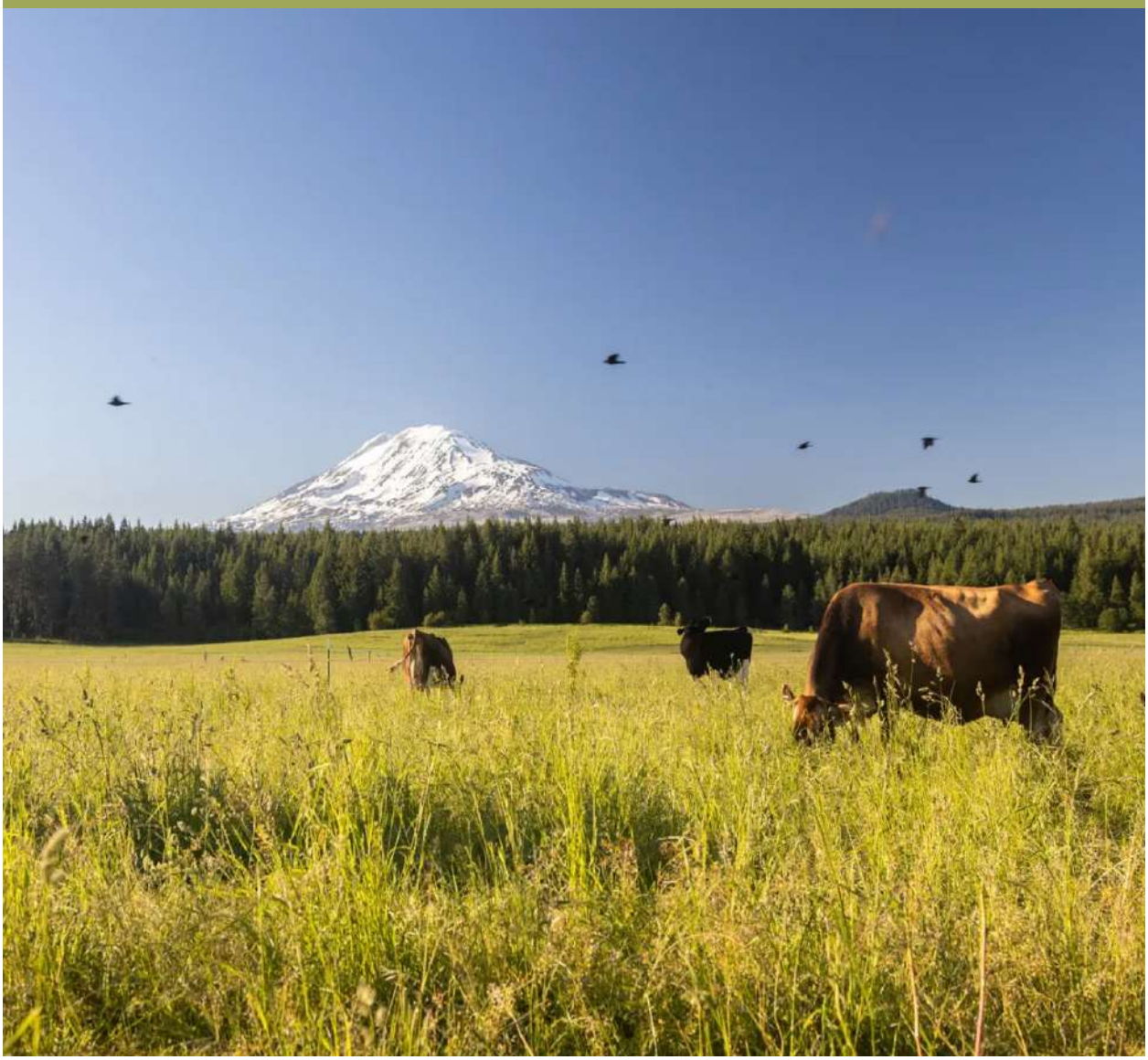
Secondly, Organic Valley supports its farmers in accessing U.S.D.A. climate-related grants and carbon markets, which would be challenging for independent farmers. Recently, they initiated a direct payment program for farmers capturing carbon emissions, providing not only financial incentives but also technical support to plan and implement carbon-reducing projects. This includes securing grants and ensuring monitoring and verification. Furthermore, Organic Valley secured $25 million from the U.S.D.A.'s Climate Smart Commodities Program, aimed at fostering direct payments for carbon reduction and supporting the cost-share for designing and implementing climate-smart agricultural practices. These practices include enhancements to grazing, pasture and croplands, manure management, feed supplements, agroforestry, and solar energy integration, showcasing the advantages of cooperative membership in gaining access to substantial grants and advocating for sustainable farming at a larger scale.

Supporting the Organic Movement Through Consumer Education

Organic Valley stands out among agricultural cooperatives due to its strong emphasis on marketing and consumer education, which is pivotal for expanding the demand for organic products and achieving remarkable scale as a company. Unlike other cooperatives that may not focus heavily, if at all, on these demand-driving strategies, Organic Valley has been instrumental in not only promoting organic dairy and eggs but also in shaping a robust supply chain to meet this growing demand. In 2022, organic dairy and egg sales in America reached $8 billion in revenue, about five times the amount since 2000, accounting for roughly 8% of total retail sales for all dairy and eggs.[30] Organic milk is growing at a compound annual growth rate (CAGR) of 6%, which is particularly notable in a category that has seen a consistent and significant decline in consumption since 1975.[31] Organic Valley's success is largely attributable to its proactive approach to educating consumers about the benefits of organic products, which has effectively shifted consumption away from conventional dairy.

Conclusion

Organic Valley serves as a compelling model for agricultural cooperatives in today's evolving food and agricultural landscape. Their focus on fostering community among farmers, member governance and collective decision-making, and most importantly, price stability, has allowed them to promote economic security and overall well-being among farmers. Moreover, by emphasizing marketing and consumer education, Organic Valley has effectively expanded the demand for organic products and shaped a robust supply chain to support this growth. This shift is underpinned by a comprehensive strategy that includes providing substantial support to farmers through stable premium pricing for organic milk and incremental initiatives like direct payments for carbon insetting and support with accessing U.S.D.A. grants. As the agricultural sector continues to navigate the challenges of sustainability and equitable growth, the success of Organic Valley highlights the effectiveness of marketing-based cooperatives in achieving these goals on a large scale, making them a vital structure for the future of farming.



Case Study 5: Dirt Capital Partners

Driving Transition Through an Injection of Tailored Capital

Year Established: 2014
Crop Focus: Multiple (dairy, meat, produce, other)
Type: Fund
Size: 9,500+ acres impacted
Location: 10+ U.S. states

The U.S. farming industry is at a pivotal juncture, with an estimated 40% of farmland expected to change hands over the next 20 years.[32] Historically, these transitions were familial, with farms passing from one generation to the next. However, the landscape is shifting as fewer young people are willing to continue the American family farming tradition. Only 23% of U.S. farm owners have a succession plan in place.[33] The decline in next-generation family farmers can, in part, be attributed to economic and quality-of-life challenges associated with farming. According to recent U.S.D.A. census data, 74% of farms earn less than $50,000 annually, and only 43% are profitable.[34] In addition, as mentioned previously in this paper, farming is an isolated and physically arduous profession, leading to some of the worst mental health outcomes of any U.S. profession. Given that 97% of farms in the U.S. are family-owned and operated, a large-scale turnover in land ownership is imminent as retiring farmers increasingly look beyond their families for buyers.[35] At the same time, investors are showing interest in this asset class; if approached intentionally and thoughtfully, these external sources of capital could play a crucial role in accelerating the transition to regenerative agriculture.

...an estimated 40% of farmland expected to change hands over the next 20 years.

Farmland is a nascent but growing asset class for proffesional investors, with the value of U.S. farmland held by investment funds doubling from $8.3M in 2021 to $16.6B in 2023[36]. There are different types of institutional investments in agriculture, with some models centering around individual farmers and others contributing to the broader scaling of regenerative ecosystems. Models that maintain farmer ownership while infusing institutional capital include flexible loans to support regenerative transitions (such as those offered by Steward and Mad Capital) and taking minority equity positions with payment terms that incentivize regenerative practices (such as those offered by Fractal Ag). Another model involves funds taking majority or full equity ownership over farms, fully buying out the farmer and managing the operations through a centralized team. Funds that employ this model include Farmland LP and Belltown Farms. A fund owning and operating land obviously

unseats farmers from their positions as owners of their land, which necessarily excludes them from any value appreciation upside. However, farmers seeking liquidity (for example, to retire or make large investments such as in the education of family members) can financially benefit from willing buyers of their land. In some cases, funds will also employ the farmers to manage land, should they be interested. This model can provide much-needed momentum to the regenerative movement through its ability to unlock hundreds of millions of transition dollars from LPs such as endowments, pension funds, and sovereign wealth funds.

For our last case study, we focused on Dirt Capital Partners, a firm that offers a variety of innovative financing options, all focused on providing a pathway for the farmer to eventually fully own the land if desired.

Partnering with Impact-driven Producers

Dirt Capital Partners (DCP) is an impact-first farmland investment company with a 10-year track record of developing creative investment tools for best-in-class farmers and ranchers. DCP works with regenerative farmers with successful operations, established markets, and the opportunity to expand their businesses through long-term land access. While DCP uses the term "regenerative," they acknowledge that every production system is different; therefore, they do not impose a specific definition or a set of expected practices. Yet, they do expect all their investees to actively engage in some form of land stewardship and only invest in farmers who manage for soil health, biodiversity, water conservation, and animal well-being. DCP also highlights the importance of innovation in driving transition and enjoys collaborating with farmers who are open to learning and experimentation. Within their impact framework, in addition to ecological stewardship, DCP seeks opportunities that improve farmer equity, deliver community benefits, and support field-building. However, DCP does not require that each project addresses all of the impact areas, and strives to build a balanced impact portfolio.

To improve chances of achieving a sizeable impact and de-risk investments, DCP prefers to work with established operations and usually requires farmers to have 2 or more years of sales experience and over $200k in annual revenue. The farmer should also have a clearly articulated need for investment, like relocating to a larger property, acquiring nearby land, conserving the land, or improving the infrastructure to transform operations. Not all projects are suited for DCP's investment tools, however, and the team is always transparent with the farmer about whether a better-suited solution exists on the market. While impact potential, scale (to some extent), and type of project are factors that impact selection for investment, DCP has no preference for production systems and works with a very diverse set of farmers, from smaller, diversified CSA producers to large organic grain operations. Their farmers are engaged in the production of dairy, meat, vegetables, fruit, and other crops, with more than half of them working with over 2 production types.

Creative and Tailored Investment Solutions to Best Support the Farmers

DCP deploys many different creative and flexible investment solutions to best serve the unique needs of their farmers. Every project is guided by a shared goal to eventually fully transition the land to farmer ownership, which creates an additional incentive for the farmer to steward and improve the land over the long term. So far, the strategy has proven efficient, with 9 out of 10 exited investments being farmer-purchased lots of land.

Currently, the most common deal type is "lease with purchase option" (54% of projects). In this model, DCP works with the farmer to identify a suitable plot, purchases it, and provides a long-term lease customized to the farmer's cash flow needs. For example, a lease can be tailored to support a farmer through organic or regenerative transition with very low payments in the first two years. At the end of the lease, the farmer has the option to purchase the land at a pre-agreed price that is usually intended to be lower than the anticipated market value at exit. Other deal types include joint ventures with the farmer to co-invest in land (19% of projects), amortizing mortgage debt (14% of projects), FSA joint financing, dual use with solar, and installment sales. This tailored approach to investing is what makes DCP so unique. In addition, compared to traditional agricultural capital providers, DCP is willing to take on more risk through full purchase of land or high loan-to-value projects, and is able to offer a better risk-adjusted cost of capital for most projects.

In each case, DCP works closely with the farmer to identify the best solution to set them up for long-term success, enabling them to earn a sustainable return that supports further work. In many scenarios, DCP works alongside partners to create blended finance instruments, unlock additional revenue opportunities, and provide farmers with relevant technical assistance. This active management approach is another differentiator of DCP vs. traditional farmland investors. While DCP does not advise farmers on how to farm, they provide holistic business support. First, DCP takes on all the real estate transaction work, like land evaluation and transaction support. Second, DCP manages the implementation of incremental value-generating initiatives that both boost impact and help drive the cost of capital down. For example, DCP facilitates conservation easement sales and has so far worked on 14 easements, helping conserve almost 2000 acres. Third, DCP serves as a connector and facilitates collaboration with other service, capital, and technical providers.

Impact-First Investment Thesis

Since its inception in 2014, DCP has invested $37M across 40 projects and 9,500 acres. They are now in their 4th fund, which targets $50M and 20 projects. As an impact-first fund, DCP does not seek outsized returns but instead invests to preserve capital and have the opportunity to perpetually reinvest. Most of their investors so far have been mission-aligned high-net-worth individuals, family offices, and, more recently, foundations. Investors usually participate in the fund as a whole, but sometimes DCP also facilitates project-based financing. DCP is actively involved in investor education and engagement as part of its goal to build out this field; it has seen significant momentum with its investor networks. This is especially important given that the food and agriculture sector has been overlooked by impact-driven investors, with less than 10% of foundation funding for climate change mitigation going to food and agriculture.

Conclusion

Dirt Capital Partners is an outstanding example of how private capital can be deployed to support farmer-driven regenerative transition. As discussed in the first section of this report, the traditional agricultural financing system often incentivizes short-term thinking and poor land management. Banks and other capital providers do not have the tools to underwrite the risk mitigation and broader benefits associated with regenerative agriculture, and fail to provide suitable instruments to support the transition. However, more and more capital providers that seek to underwrite and encourage land transition to regenerative practices are emerging. Over the past ten years, DCP has been ideating and testing innovative investment models to address the dearth of capital and has managed to create a working playbook for investor-farmer collaboration on land stewardship. Their flexibility, active management, and farmer-first approach is what makes their work truly unique and impactful. Yet, the resulting complexity may become a challenge with the growing size of their funds. DCP acknowledges this obstacle and continues to explore solutions. DCP believes that expanding strategic partnerships to streamline select types of projects will be a key lever to achieve more efficiency. Given how new and challenging the field is, the key to success is continued collaboration and learning.

Concluding Thoughts

Supporting Farmers Along the Way

Regenerative agriculture has great potential to change the broken food system in the United States. The transition to regenerative, however, will not be easy, in large part because the incumbent system is set up in a way that doesn't promote regenerative practices. According to a 2023 BCG report, the risk associated with transitioning is one of the top three concerns farmers have about adopting regenerative agriculture, in addition to lacking technical expertise and facing peer pressure from peer farms to maintain the status quo.[37] Therefore, we believe that a large-scale transition to regenerative agriculture is only possible with coordinated efforts by federal and local governments, nonprofits, corporates, and communities to improve the following levers:

Since each lever merits its own report, we've included a relevant resource to learn more about each.

1. **Transition Financing:** Though fully implemented regenerative agriculture practices typically yield net profits that are 12% greater than conventional practices,[38] the transition period can be expensive and risky. Different financing vehicles, which provide upfront capital through investments, loans, or otherwise, are necessary to help farmers cover the cost of transition and reduce financial risk. Financing mechanisms range from concessionary capital coming from non-profit sources to catalytic capital and other types of impact investing from non-profit or for-profit sources to traditional financial services, like public and private debt and private equity investments.
    1.1. For further learning: Rockefeller Foundation's 'Financing for Regenerative Agriculture'
2. **Crop insurance:** Currently, crop insurance policies often do not cover the diversified crops and rotational practices central to regenerative agriculture, which can discourage farmers from adopting the practices. To support regenerative farming, crop insurance programs need to be reformed to incentivize sustainable practices by recognizing and underwriting the lower long-term risk associated with improved soil health and resilience to climate impacts.[39] Ensuring that regenerative practices are covered under crop insurance would provide a crucial safety net for farmers during the transition period, thereby encouraging widespread adoption of sustainable methods.
    2.1. For further learning: RFSI's 'Harvesting Crops, or Harvesting Insurance?'
3. **Markets:** Farmers are willing to grow what consumers want, and much of consumer demand is shaped by what consumer-packaged goods (CPG) companies offer. The food and beverages sector of the CPG industry represented a $600B market in 2023, purchasing almost 30% of all corn and nearly half of soybean products.[40] There is some promise in CPG companies accelerating regenerative agriculture adoption, such as General Mills' commitment to advancing regenerative agriculture on 1M acres by 2030. CPG companies make these commitments to achieve their ESG goals and/or promote future supply chain security, but critically, they are unable to pass on most transition costs to customers due to lack of consumer demand for regenerative. With that in mind, another group that can accelerate adoption of regenerative agriculture are buyers of ecosystem services like carbon credits. By fully monetizing ecosystem services, farmers would be able to get appropriately compensated for the transition costs they

undertake. This space is still extremely nascent, however, with only 1% of farmers having signed carbon farming contracts as of March 2023,[41] attributable to lack of farmer awareness, credit integrity concerns due to price volatility, and challenges in measuring soil carbon sequestration.

3.1. For further learning: U.S.D.A.'s 'General Assessment of the Role of Agriculture and Forestry in US Carbon Markets'

4. **Measurement, Reporting, and Verification (MRV):** Definitively measuring and verifying the organic matter, biodiversity, water preservation, and other benefits to the soil and our ecosystems remains a crucial challenge in scaling regenerative practices. According to a recent report by the Environmental Defense Fund, due to the lack of data scientists are still struggling to understand which conservation practices can best mitigate climate change.[42] Today, the prevailing MRV methodologies either use sub-surface carbon and nutrient sampling, satellite data, model-based processes, or a combination of multiple methodologies. Traditional soil sampling suffers from high costs, while model-based measurements suffer from inaccuracy. Developing more accurate and less costly ways of gathering and verifying carbon sequestration and other nutrient restoration is critical to the regenerative movement being able to point to outcomes in addition to practices.

    4.1. For further learning: E.D.F.'s 'Agricultural Soil Carbon Credits'

5. **"Missing middle" infrastructure:** The current processing and distribution channels for food are extremely consolidated and are set up for large-scale operations. Many of the stakeholders we spoke with talked about the importance of developing distinct infrastructure and supply chains that can accommodate smaller harvests from small- and mid-sized farms. This was identified as one of the major white space investment opportunities in the CREO report, "Unlocking Investments in Regenerative Agriculture," as today's infrastructure cannot accommodate the type of regenerative supply chain that many envision. Furthermore, investments in cold storage, transportation, and digital infrastructure are essential to reduce food waste and improve supply chain efficiency. Strengthening these aspects of the supply chain will not only help in scaling regenerative practices but also in building more resilient local food systems that can better withstand economic and environmental shocks.

    5.1. For further learning: Croatan Institute's 'Investing in Regenerative Agriculture Infrastructure across Value Chains'

6. **Education and network effects:** We heard about the need for both education of farmers and consumers. Consumer education is critical to building demand, so that farmers feel confident in making the transition, and buyers like CPG companies are willing to invest in sourcing regeneratively grown crops. There is also a need for farmer education — both on the technical side and on the economics of making the transition. Farmers trust other farmers: In one study, 70% of Iowa farmers interviewed said they are only willing to try a new technology or practice upon seeing other farmers successfully implementing it.[43] With that in mind, independent organizations, like Practical Farmers of Iowa, are trying to build a parallel cooperative extension model to teach farmers how to use regenerative practices like cover cropping and intercropping.

    6.1. For further learning: 'Roots So Deep' docu-series

As a team, we believe different types of farms, business models, and enablers will each play their own unique role in building a resilient and thriving food system. Smaller local farms can involve eaters in a direct and intimate setup, foster community ties, and support adaptive supply chains. Bigger regional farms with wider market access can activate more consumers through authentic storytelling and superior products. Forms of collective action, like cooperatives and food hubs, can help build efficiencies and provide market access for smaller farmers to thrive. Mission-driven real asset managers can help accelerate the transition of conventional land to regenerative land through diversified at-scale investments. And the community of nonprofits, bureaucrats, and corporates that are working to activate the levers identified above are critical to a farmer's decision to transition. We believe there is a great need for collaboration and openness to accept other groups' theories of change, given we are united by a similar goal of promoting regenerative agriculture. We also hope that more consumers, farmers, investors, policymakers, and food professionals embark on this journey and seek to learn more. This report, and the resources listed in the appendix, are a great place to start.

Appendix

Resources

Below, you can find a curated library of reports, podcasts, and other resources on regenerative agriculture that we have found helpful in our research, and have used to build our work. This is not meant to be a comprehensive list of all available knowledge but rather our recommendation for those who want to start learning about the field and/or deepen their understanding of it.

Reports

Name	What to Look For
Investing in Regenerative Agriculture by SLM Partners (2024)	*For anyone wanting to learn more about regen ag:* • In-depth discussion of regen ag principles • Comprehensive review of research on **positive integrated impacts of regen ag** across Improving soil health Addressing climate change Enhancing biodiversity Improving water quality Growing higher quality, nutritious food Improving farm profitability For investors: • Regen ag investment approach with a focus on **real asset investments**
SOIL WEALTH Investing in Regenerative Agriculture across Asset Classes by Croatan Institute (2019)	*Primarily for capital allocators:* *Mapping and in-depth discussion of* **mechanisms and approaches to regen ag investments across asset classes** *(scored by level of readiness for regenerative)* *Cash and Equivalents* *Fixed Income* *Public Equity* *Private Equity and Venture Capital* *Farmland and Real Assets*
Investing in Regenerative Agriculture Infrastructure Across Value Chains by Croatan Institute (2022)	*Primarily for capital allocators + anyone wanting to learn more about ag infrastructure businesses:* • Overview of value chains and infrastructure for regen ag across Meat, Grain, Fruit and Vegetable, and Tree Nut, covering key challenges and opportunities • 20+ infrastructure **case studies** (from farms to processors) covering highlights on business model, governance, operations and place in the value chain • Financial mechanisms uniquely positioned to support infrastructure businesses with org examples

Unlocking Investments in Regenerative Agriculture by CREO (2021)	Primarily for capital allocators + those interested in learning more about leading investors in the space: • **White space opportunities** for investors overview: Inputs, Biologicals, Seeds Carbon Outcomes Tools, Frameworks and Markets Novel Financing Frameworks and Outcomes Based Finance Processing, Storage, and Distribution Development Consumer Connection • 12 Company and Fund Profiles with different approaches to regen ag investing
Understanding Ag Soil Health Academy Case Studies	*Primarily for farmers who want to transition to regen ag + anyone interested to learn about benefits of regen ag from real-life examples* • **10 in-depth case studies** covering background, transition process and regen practices, results across farm finance, yields, soil health, biodiversity, water use and other relevant outcomes.

Books

Call of the Reed Warbler: A New Agriculture, A New Earth by Charles Massy	This book discusses regenerative agriculture and the breadth of its restorative impact upon human health, biodiversity, climate and ecology. The author leverages his personal experience as a farmer transitioning from chemical conventional agriculture to revolutionary ecological approach, in parallel explaining how the industry incentivizes destructive farming practices and how a pathway to a better system could look like.
Dirt to Soil by Gabe Brown	One of the best-known regenerative farmers in the US, Gabe Brown, tells his story of transitioning to regenerative agriculture and shares his learnings along the way. He formulates and explains five principles of soil health (limited disturbance, armor, diversity, living roots, integrated animals) and makes the case for farming regeneratively.
What Your Food Ate: How to Heal Our Land and Reclaim Our Health by David R. Montgomery & Anne Biklé	The authors explore the connection between human and soil health, marshalling evidence from recent and forgotten science. David and Anne are recognized experts in the field and conduct academic studies on soil health and nutrient density (see 2022 paper). Their work is a must-read for all eaters, farmers, doctors and anyone who wants to learn how to reverse the modern epidemic of chronic diseases while mitigating climate change.

Podcasts

Investing in Regenerative Agriculture and Food by Koen van Seijen	This podcast is a go-to place to learn from changemakers in regenerative food and ag space not only in finance but also farming, policy, academia, non-profits, and consumer space. Episodes are very diverse and shed light on both fundamentals of the space and the current agenda/debates/news in regen ag.
Regenerative Agriculture by John Kempf	The podcast is focused on the farming side of things. John interviews experts in the field to share insights on farming practices which can regenerate soil health, plant health, and ecosystem health, while increasing farmer profitability. Though targeted at professional growers and agronomists, this is a great resource for anyone wanting to dig deeper.
ReGen Brands by Kyle Krull & Anthony Corsaro	This podcast is a place for consumers, operators, and investors to learn about consumer brands that support regenerative agriculture.

Other Resources

Regenerative Food Systems Investment	RFSI acts as a community builder and educator in regenerative agriculture space. They organize the industry's flagship Forum, organize webinars, and share insights and news on the field via their Newsletter.
Rodale Institute	Thought leader in regenerative organic field. Rodale conducts research to uncover and promote benefits of regenerative and organic farming (e.g., see their 40-year organic vs. conventional trial), as well as educates farmers.
Nutrient Density Alliance	NDA works to ignite awareness and action around nutrient density to drive demand for a regenerative food system. Visit their resource library (for consumers, companies, and farmers) to learn more about the connection between human and soil health.

Regenerative Certifications	Various certifications are currently being used with th emost common being: • USDA Organic • Regenerative Organic • Land To Market Verified • Soil & Climate Health Initiative Verified • Certified Regenerative by AGW • Regenified • Demeter Biodynamic For those interested to learn more about these certifications and how they compare, you can visit: FoodPrint targeted at consumers for brief descriptions and top picks (identified by FoodPrint) Kiss the Ground targeted at farmers for descriptions covering target user, timeline, cost, measures RFSI for a cheat-sheet with brief descriptions

Funding Landscape

Based on our research, we have mapped out the leading capital allocators in regeneratice agriculture by asset class in this spreadsheet. You can also find a long list of reports we have come across during our study in this document.

Endnotes

1 Our World In Data article: "Food production is responsible for one-quarter of the world's greenhouse gas emissions" (November, 2019)
2 Tufts Now article: "Report Shows Food is Medicine Interventions Would Save Lives and Billions of Dollars" (September, 2023)
3 USDA, Economic Research Service: "Farming and Farm Income" (February, 2024)
4 American Enterprise Institute article: "Where the Money Goes: The Distribution of Crop Insurance and Other Farm Subsidy Payments" (January, 2018)
5 RFSI article: "Harvesting Crops, or Harvesting Insurance? How the USDA's Crop Insurance Policy is Preventing a Regenerative Transition" (April, 2024)
6 The Rockefeller Foundation: "True Cost of Food: Measuring What Matters to Transform the U.S. Food System" (July, 2021)
7 SLM Partners: "Investing in Regenerative Agriculture" (February, 2024): p 31-43 for an in-depth discussion of studies on the economics of regenerative agriculture
8 USDA: "The role of Climate-Smart Agriculture in climate adaptation and mitigation in the Northeast"
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