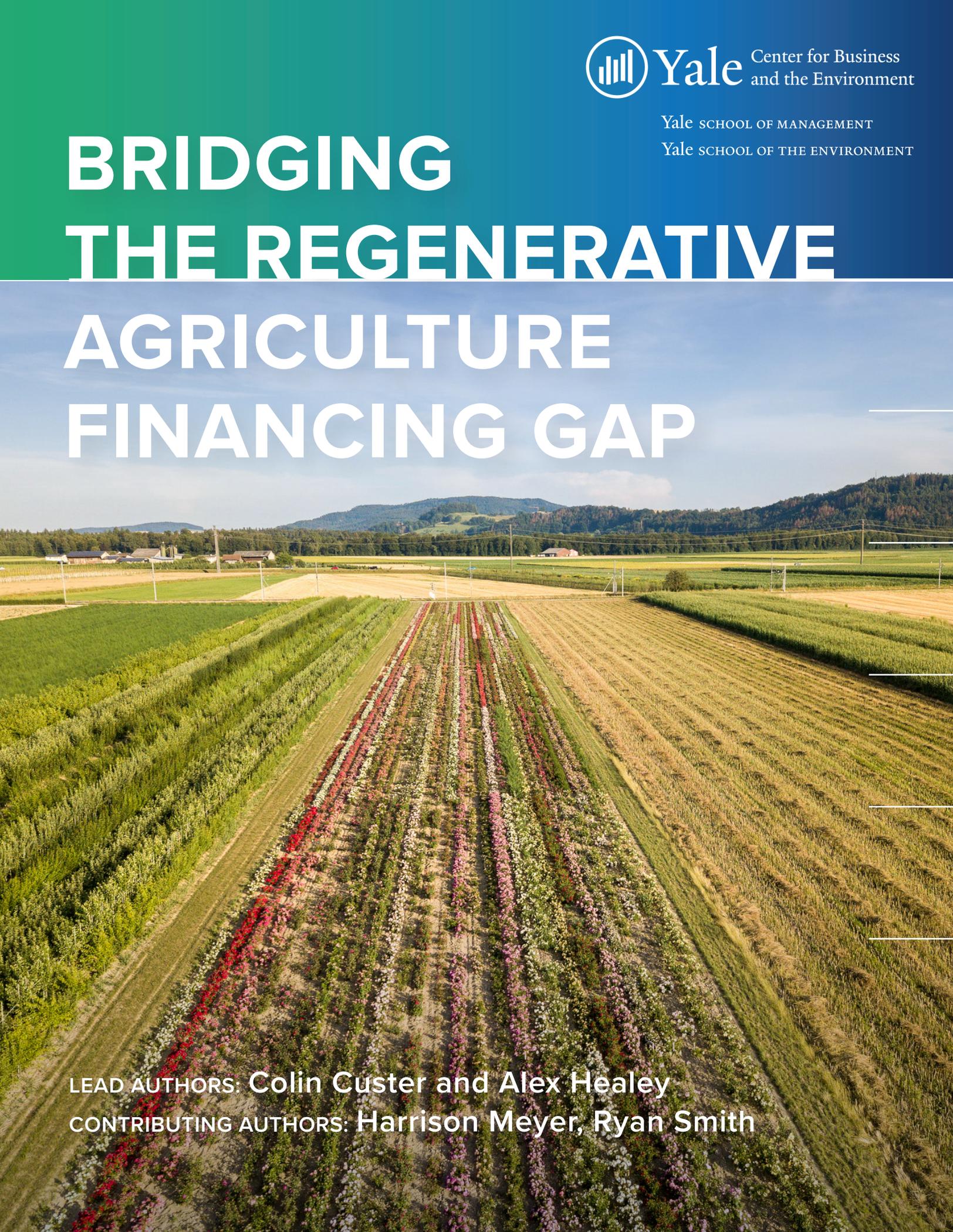


BRIDGING THE REGENERATIVE AGRICULTURE FINANCING GAP



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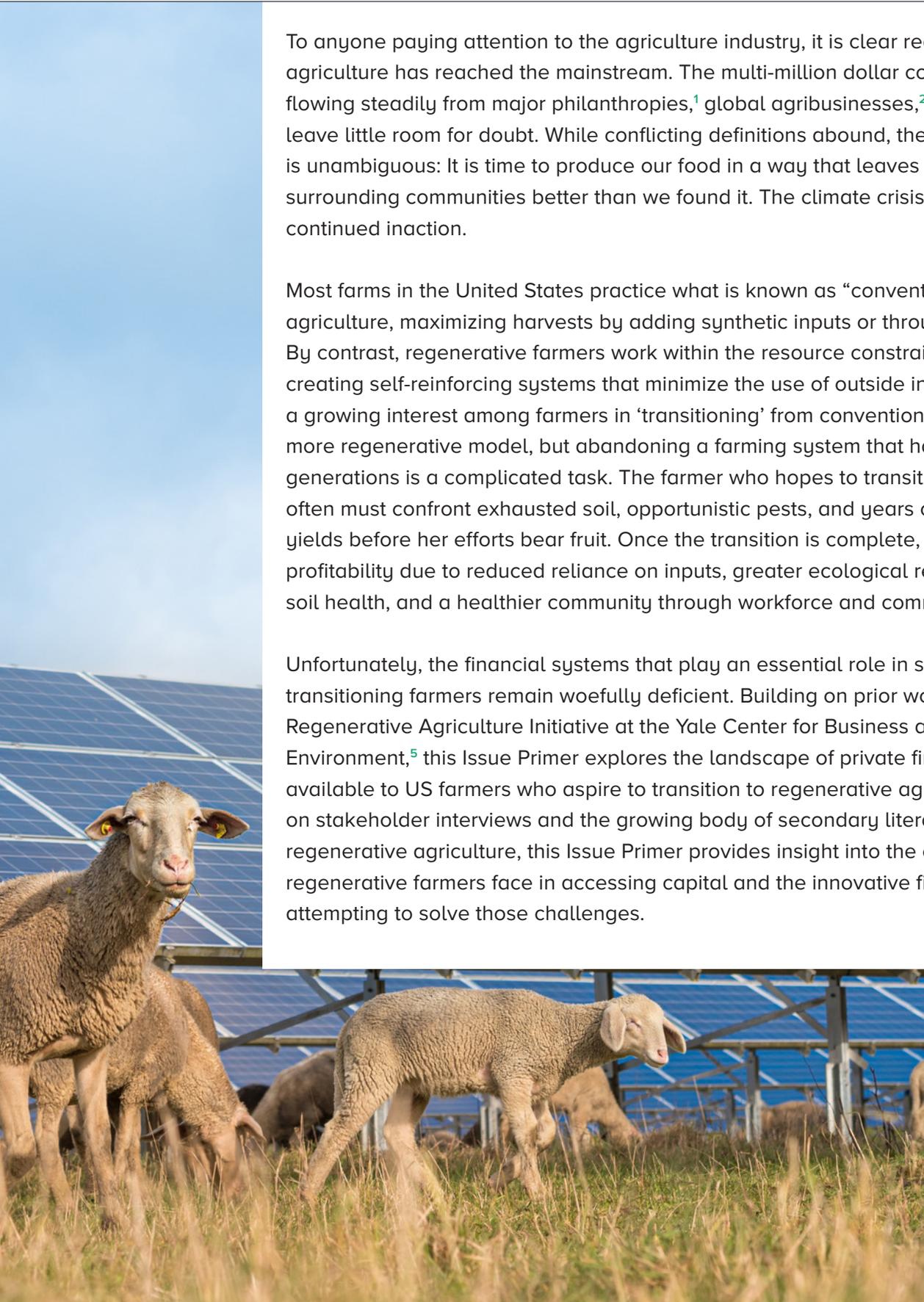
Cover photo depicts fields with diverse crop growth based on principle of polyculture and permaculture.

INTRODUCTION

To anyone paying attention to the agriculture industry, it is clear regenerative agriculture has reached the mainstream. The multi-million dollar commitments now flowing steadily from major philanthropies,¹ global agribusinesses,² and governments³ leave little room for doubt. While conflicting definitions abound, the messaging is unambiguous: It is time to produce our food in a way that leaves the land and surrounding communities better than we found it. The climate crisis leaves no time for continued inaction.

Most farms in the United States practice what is known as “conventional” or “industrial” agriculture, maximizing harvests by adding synthetic inputs or through frequent tillage. By contrast, regenerative farmers work within the resource constraints on their farms, creating self-reinforcing systems that minimize the use of outside inputs. There is a growing interest among farmers in ‘transitioning’ from conventional farming to a more regenerative model, but abandoning a farming system that has prevailed for generations is a complicated task. The farmer who hopes to transition her operation often must confront exhausted soil, opportunistic pests, and years of sub-standard yields before her efforts bear fruit. Once the transition is complete, farmers see higher profitability due to reduced reliance on inputs, greater ecological resilience through soil health, and a healthier community through workforce and community investment.⁴

Unfortunately, the financial systems that play an essential role in supporting transitioning farmers remain woefully deficient. Building on prior work by The Regenerative Agriculture Initiative at the Yale Center for Business and the Environment,⁵ this Issue Primer explores the landscape of private financial products available to US farmers who aspire to transition to regenerative agriculture. Drawing on stakeholder interviews and the growing body of secondary literature on financing regenerative agriculture, this Issue Primer provides insight into the challenges regenerative farmers face in accessing capital and the innovative finance organizations attempting to solve those challenges.



Why focus on transitions?

About 60% of total agricultural acreage nationwide is managed by owner-operators, a figure poised to change dramatically in the coming decade.⁶ The average owner-operator is nearly 58 years old, and a substantial portion of leased acreage is owned by retired farmers who will pass their land on in the coming years. Some of this land will go to the next generation of owner-operators, while some will be sold to the growing number of corporations and financial institutions interested in owning farmland. This ownership shift will occur in tandem with the growing global effort to transition agricultural production toward a lower-carbon, less harmful set of practices; new owners typically are more willing to pursue regenerative agriculture.⁷ Our ability to develop systems to make this coming land transition not just an *ownership* transition but a *regenerative one* will determine whether we create a better system of agriculture or continue down the paths we have trodden for decades. To help articulate the financing challenges that would-be regenerative farmers face and the potential solutions that are emerging, we start by examining the varying definitions of regenerative agriculture and propose our own as a foundation for discussing financing the transition. Then we turn to examine the current state of play in financing regenerative agriculture in three key areas:

What Drives Financial Return for a Regenerative Transition?

Regenerative agriculture is a heterogeneous set of practices meant to achieve site-specific goals. While this lack of uniformity is a cornerstone of the regenerative ethos, the fact remains that banks and investors will need to develop repeatable approaches for underwriting these practices. This section links the various on-farm benefits produced by regenerative agriculture to concrete financial outcomes. We consider the value proposition of certifications, and particular attention is paid to characterizing the financial benefits of resilience, direct partnerships with values-aligned corporate or foodservice purchasers, and payments for ecosystem services.



How Regenerative Farmers Do (Or Don't) Access Capital

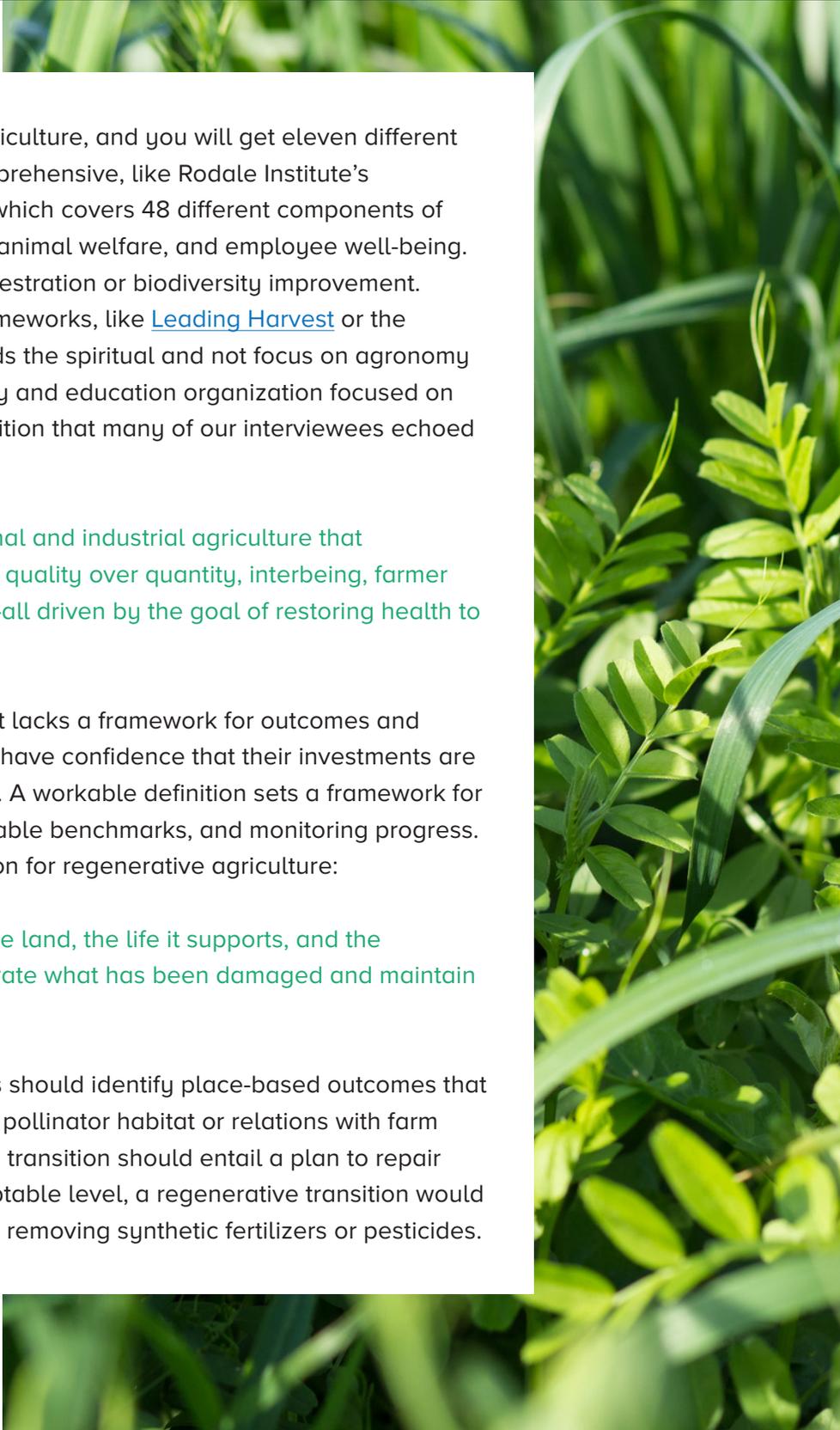
There is a diverse landscape of private, governmental, and quasi-governmental lenders currently serving the agribusiness sector, but many regenerative farmers still struggle to secure financing. This section explores why traditional sources of lending fall short, and how an innovative cohort of private investment firms has emerged to supply financial products that are tailored to rapidly and equitably meet regenerative farmers' financial needs.

Structural and Social Barriers to Regenerative Adoption

This section looks at the challenges that might hold a farmer back from pursuing a regenerative transition or dropping out once it's begun. Annual lease or mortgage payments, short-term return expectations, or investors focused on an overly broad portfolio may lose track of the social and place-based nature of farming. But the community surrounding a farm determines success just as much as its capital structure. Weathering the setbacks, extra manual labor, and depressed yields in the early years of a transition is difficult, and without a community of support and technical resources many farmers drop out of regenerative programs after just a few years. Investors and farmers who neglect the holistic needs of a farm will fail to achieve their hoped-for results.



WHAT IS REGENERATIVE AGRICULTURE?



Ask ten farmers to define regenerative agriculture, and you will get eleven different answers. They could be detailed and comprehensive, like Rodale Institute's [Regenerative Organic Certification](#) (ROC) which covers 48 different components of farm operations across soil management, animal welfare, and employee well-being. Others are tightly focused on carbon sequestration or biodiversity improvement. Still others are broad outcomes-based frameworks, like [Leading Harvest](#) or the [SAI platform](#). They might even tend towards the spiritual and not focus on agronomy at all. Mad Agriculture, a leading advocacy and education organization focused on regenerative agriculture, puts forth a definition that many of our interviewees echoed to varying extents:⁸

“An alternative approach to conventional and industrial agriculture that instead values diversity in all its forms, quality over quantity, interbeing, farmer empowerment, true wealth and more—all driven by the goal of restoring health to the land and the people who walk it.”

We believe Mad's definition is powerful but lacks a framework for outcomes and measurement. Financial investors need to have confidence that their investments are yielding the changes they seek to support. A workable definition sets a framework for identifying these changes, setting appreciable benchmarks, and monitoring progress. As such, we propose the following definition for regenerative agriculture:

A systems approach to working with the land, the life it supports, and the community that surrounds it to regenerate what has been damaged and maintain desired outcomes where they exist.

Under our definition, farmers and investors should identify place-based outcomes that require a deliberate strategy to achieve. If pollinator habitat or relations with farm labor have been damaged, a regenerative transition should entail a plan to repair them. Similarly, if soil health is at an acceptable level, a regenerative transition would explicitly consider how to maintain it while removing synthetic fertilizers or pesticides.

It is important to recognize how central flexibility and diversity of practice is to this approach. The philosophy of working with a given piece of land requires one to take a less dogmatic view toward agricultural practice than, say, USDA organic certification. Take the example of tillage. ‘No-till’ farming is a key tenet of regenerative agriculture, but creating a bright line rule of zero tillage would force a rigid standard on land that might benefit from occasional plowing. Accordingly, the Regenerative Organic Certification, widely recognized to be the strictest commercial standard for regenerative agriculture today, allows for tillage to “incorporate crop residues and/or green manures into soil to feed soil microorganisms; control weeds; prepare seed bed/planting; break up compacted soil; or develop drainage.” The standard, instead of prohibiting tillage, requires practitioners to “document all tillage events, and build a plan to reduce tillage intensity over time” with the goal of minimizing soil disturbance and erosion.⁹ Farmers may choose the right practices for their own farm and situation, pursuing the health of their soil free from arbitrary constraints.

Many commentators have rightly observed that this flexibility carries within it an easy route to greenwashing. Without a rigorous prescription for regenerative production, farmers with little interest in changing their conventional approach to agriculture can nonetheless adopt certain regenerative practices, such as cover cropping, while still heavily applying pesticides or exploiting farm laborers. One contentious assertion voiced by multiple interviewees was that top-down, practice-based assessments such as the ROC are fundamentally misaligned with the goals of regenerative agriculture. Any industry-wide effort to measure and define success, they claimed, should be tailored to a particular plot of farmland and should ultimately be able to demonstrate concrete outcomes based on clear baselines. That is, it should be able to prove that a farmer is in fact ‘regenerating’ the land, not just engaging in a box-checking exercise. While practice-based frameworks such ROC can be tremendously effective for discouraging actions that are understood to be harmful, claiming regeneration of any farm must include rigorous measurement of progress against a baseline to ensure that ‘good’ practices are truly regenerative.



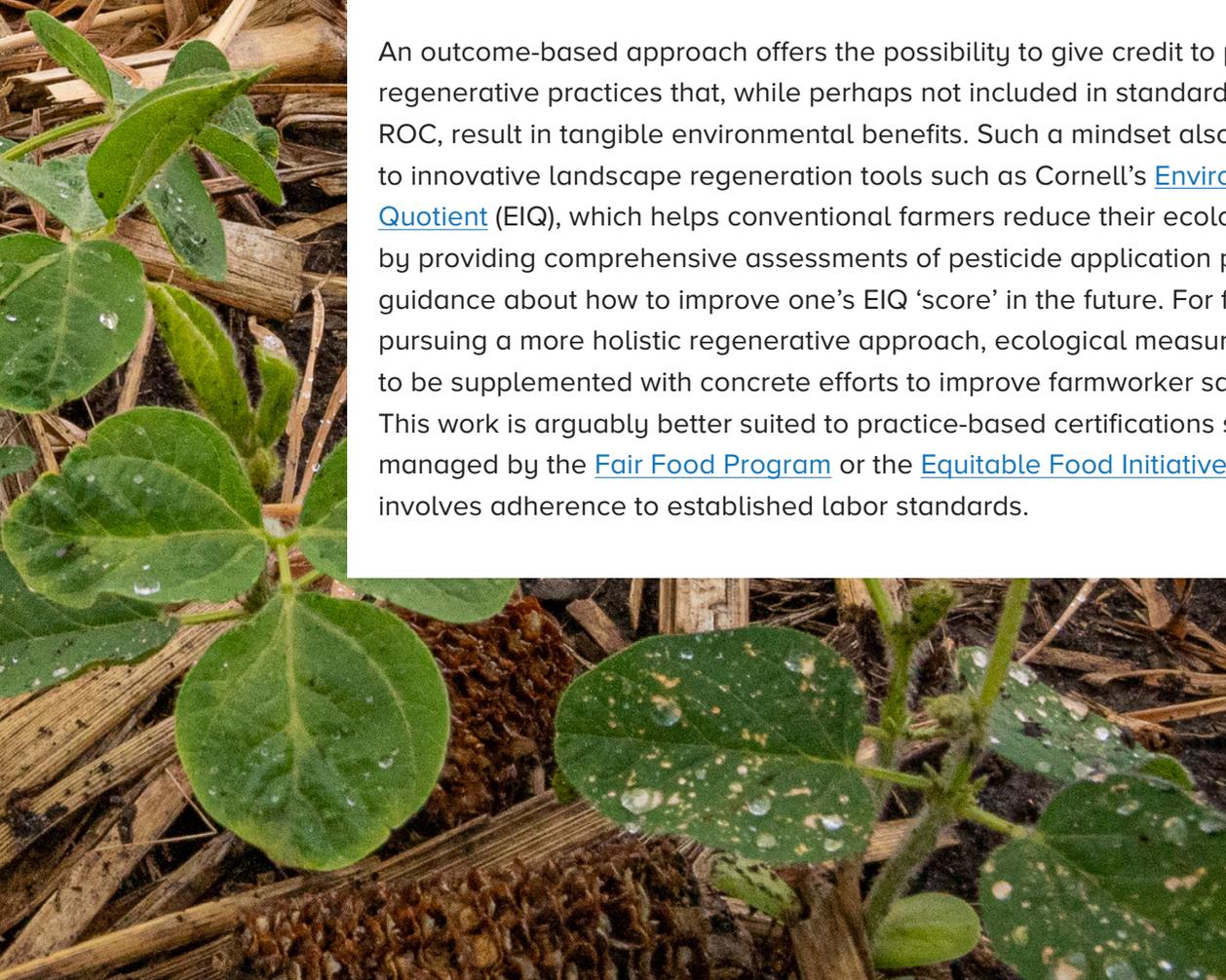


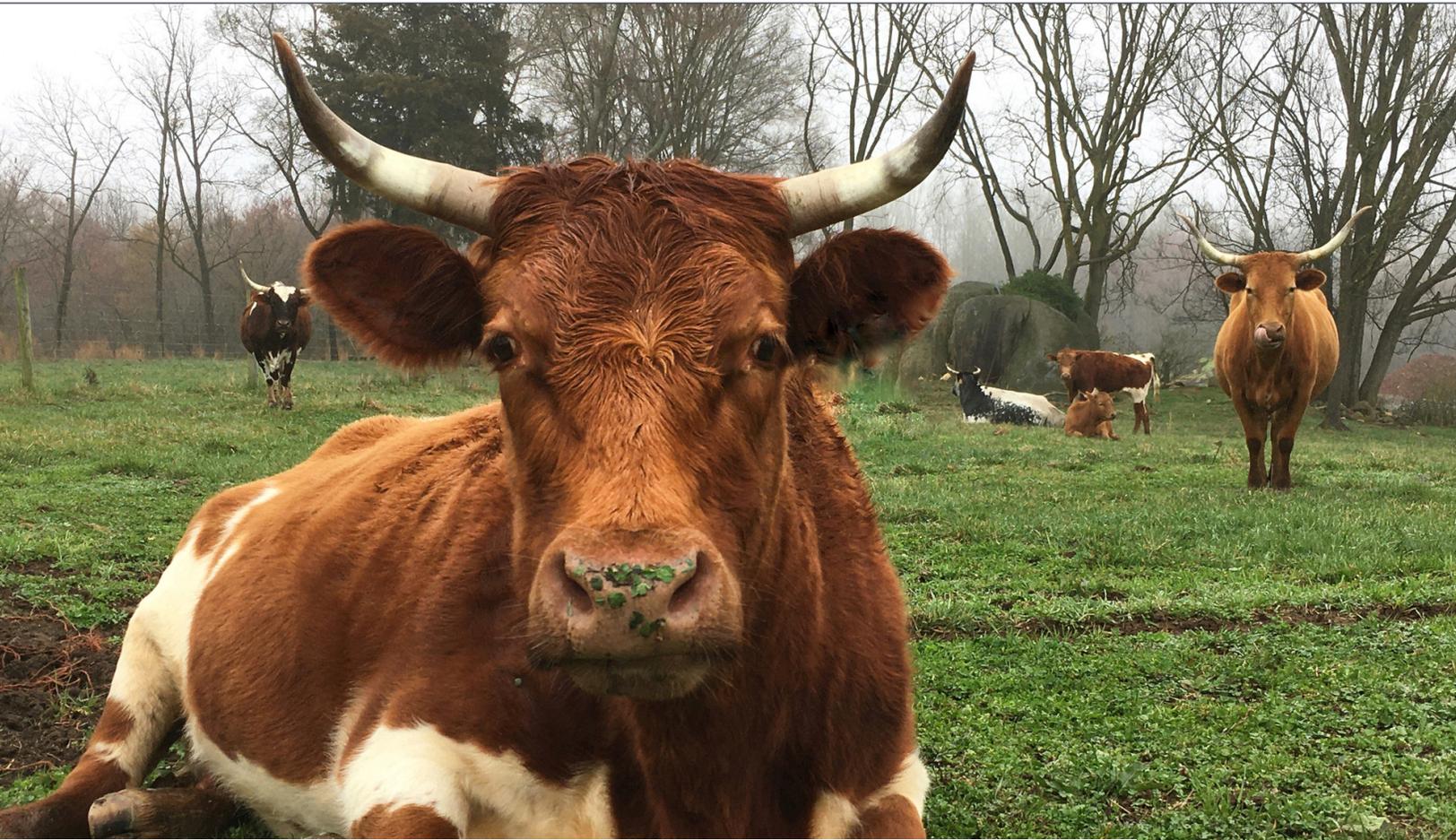
This logic implies that the path toward cross-comparability of regenerative farm performance must somehow allow for measurement against individualized baselines. At least one interviewee shared that they had used the Savory Institute’s Ecological Outcome Verification (EOV) program for exactly this purpose. Rather than relying upon a predetermined basket of practices, the EOV helps farmers to set baselines in areas such as soil health and on-farm biodiversity to then proceed on a continuous outcome-based journey of landscape regeneration.¹⁰

While the Savory Institute’s program is typically only available to livestock farmers, other regenerative agriculture stakeholders are increasingly adopting a focus on outcomes-based performance measurement. For example, the Food and Land Use Coalition recently published a report concluding the following:¹¹

“Moving towards an outcome-based framework of regenerative agricultural practices is needed... based on research, evidence, experience and insights of farmers, Indigenous peoples, local communities, civil society and academia. The framework will inform the evaluation and continuous improvement of regenerative agricultural practices across the world, and also inform strategies to scale up adoption of the most effective practices.”

An outcome-based approach offers the possibility to give credit to place-based regenerative practices that, while perhaps not included in standards such as the ROC, result in tangible environmental benefits. Such a mindset also opens the door to innovative landscape regeneration tools such as Cornell’s [Environmental Impact Quotient](#) (EIQ), which helps conventional farmers reduce their ecological impact by providing comprehensive assessments of pesticide application plans alongside guidance about how to improve one’s EIQ ‘score’ in the future. For farmers interested in pursuing a more holistic regenerative approach, ecological measures of success need to be supplemented with concrete efforts to improve farmworker safety and fairness. This work is arguably better suited to practice-based certifications such as those managed by the [Fair Food Program](#) or the [Equitable Food Initiative](#), as it generally involves adherence to established labor standards.





Encouragingly, the trend toward outcome-based environmental and social performance assessment is not limited to small or mid-sized owner-operators. For example, a growing number of agribusinesses and institutional farmland managers have committed to adhering to production standards set by the nonprofit organization [Leading Harvest](#).¹² Growers who work with Leading Harvest characterize its approach as being “outcome-based, third-party assured, and ... designed to be universally applicable across all crops and all geographies.”¹³ While Leading Harvest’s standard does allow farmland managers substantial discretion over which practices they employ, it mandates the rigorous measurement and management of performance for outcomes ranging from soil health to water quality to farmworker compensation.

Taken together, there appears to be evidence that farmers of various scales are beginning to coalesce around rigorous, outcome-based approaches to measuring social and environmental performance. Critically, outcome-based approaches will provide lenders, consumers, and other stakeholders confidence that ‘regenerative’ agriculture operations are living up to their name. By focusing on “*regenerat[ing] what has been damaged*”, rather than on a set of predetermined practices, both farmers and investors can be confident that their incentives are aligned and can work together to fit the broad goals of sustainable agriculture.

WHAT DRIVES FINANCIAL RETURN FOR A REGENERATIVE TRANSITION?

The adoption of regenerative practices introduces a unique set of financial opportunities, some of which may not always be obvious to farmers and funders alike. Here we provide a broad overview of the modes through which financial value might be realized from a regenerative farming operation. After briefly discussing well-established pathways such as soil improvement or certification, this section turns to emerging opportunities that could enable a growing number of regenerative farmers to enhance their near-term profits.

Building Resilience

Perhaps the most cited economic benefit of regenerative agriculture is its ability to build both ecological and social resilience and therefore long-term profitability. Ecologically, processes like soil health improvement, crop rotation, and reduced reliance on chemical inputs make farmers less susceptible to price shocks, pests, or changing precipitation. Investing in worker livelihoods, job training, and community organizations strengthens the support networks the farmer relies on and which become critically important in times of need. These results, however, can be difficult to put into traditional financial terms. Fortunately, detailed case studies on the economics of regenerative practices at the farm scale are already available in recent reports from the [American Farmland Trust](#), the [Environmental Defense Fund](#), and [Boston Consulting Group](#).

The resilience of regenerative farms in the face of climate change is becoming an increasingly salient theme in these reports. Investors should consider how regenerative practices provide substantial downside protection during extreme weather events. Regenerative farms often have higher soil organic matter. Soils with higher organic matter can both absorb and retain water more efficiently, providing an advantage during both very wet and very dry conditions. This means regenerative farmers have been able to better endure extreme climate events such as the historic drought and catastrophic flooding seen in California's Central Valley in 2023.¹⁴





Given growing climate uncertainty, it would seem this increased resilience should reduce a major cost for farmers: insurance coverage. Ideally if farms are more resilient to disasters, insurers would be more likely to cover them at a lower cost. Unfortunately, well over 90% of the market for crop insurance is subsidized by the federal government.¹⁵ In return for subsidies, the government requires farmers to adhere to “Good Agricultural Practices” meant to deter fraud and waste. Counterintuitively, regenerative practices such as continuous cover cropping or intercropping systems are not considered Good Agricultural Practices, making those fields ineligible for insurance, thereby creating significant additional risk for farmers.¹⁶ Though the resilience can be expected to mitigate that risk in the medium or long term, it only heightens the need for flexible financing in the short term.

The Certification Pathway

Another widely-discussed economic rationale for transitioning away from conventional agriculture is the prospect of realizing substantially higher revenues via certification programs such as [USDA Organic](#) or [Regenerative Organic](#). When we asked interviewees about the potential return on investment of a regenerative transition, conversations often gravitated towards these programs. Such interest is hardly surprising given that per-unit pricing for some certified organic crops can be more than double that of conventional alternatives.¹⁷ Certification frameworks still are the most straightforward way for consumers to identify regeneratively produced foods and for farmers to receive fair value for their harvests. This is why certification-oriented transition finance is a core offering for owner-operator focused firms such as Mad Capital and why ecologically-minded institutional farmland investors such as [SLM Partners](#) and [Farmland LP](#) have also built strategies based on transitioning cropland from conventional to organic production.

However, unlike the soil health benefits that accrue to all regenerative farmers, certification frameworks offer a financial upside only to the small subset of producers who choose to pursue certification. According to interviewees, reasons that regenerative farmers don’t want to be certified range from the substantial financial and workload requirements for maintaining certification, to a discomfort with the practices that these frameworks prescribe. More than one interviewee also noted a philosophical uneasiness about the long-term societal impacts of organic business, which is built upon charging premium prices for certified produce. While they agreed that regenerative agriculture needs to be profitable to scale, they lamented that this growth paradigm might come at a meaningful cost to consumers—particularly in BIPOC or underinvested communities who already struggle to access nutritious food. Making

regenerative food prohibitively expensive for many communities in the US runs directly counter to the goals of the regenerative movement, and projects promising premium prices as the sole benefit should give investors pause.

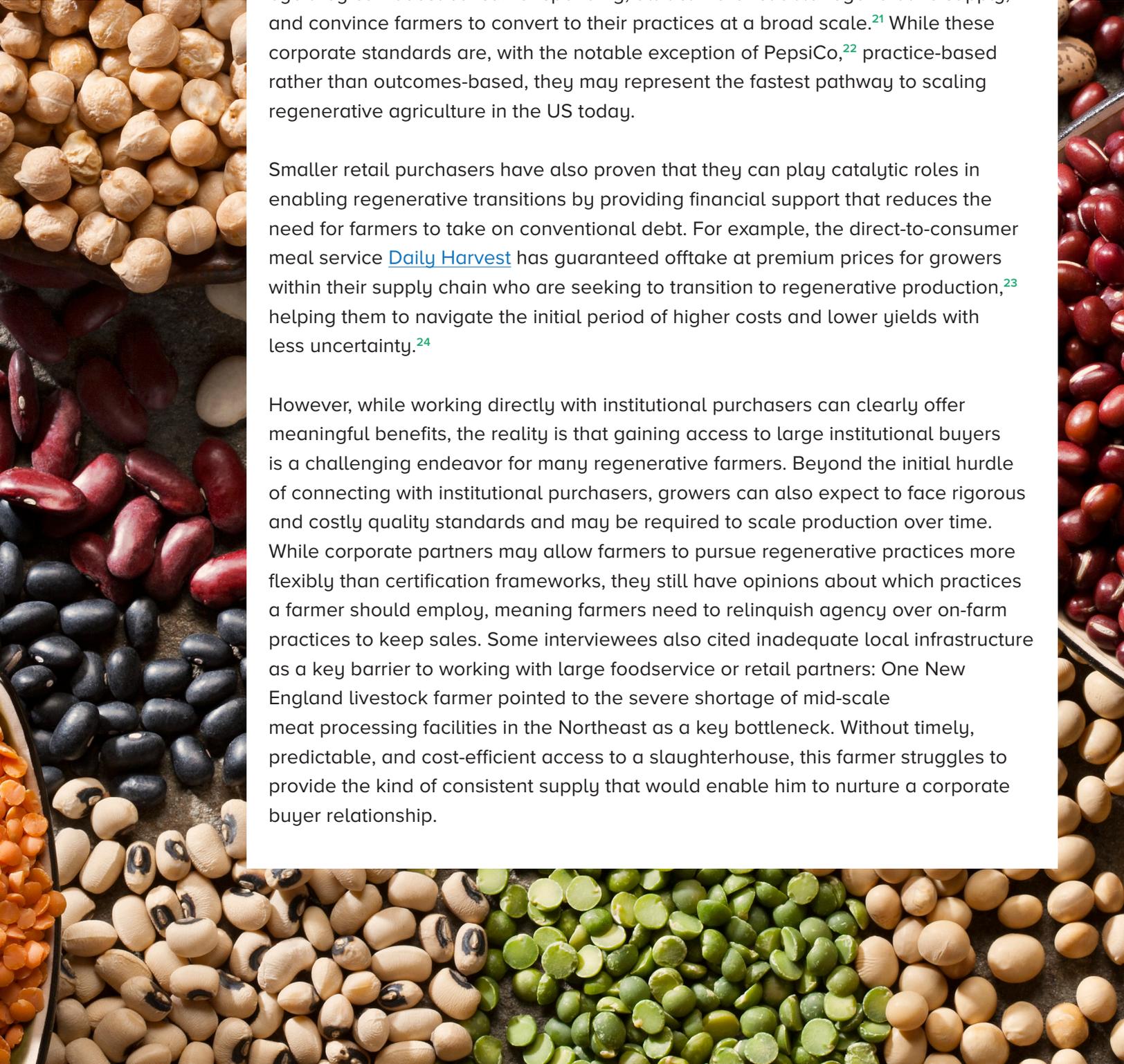
Finding the Right Buyers

Fortunately, there are increasing opportunities for regenerative farmers to secure buyers at scale and ensure profitability outside of certification frameworks. Foodservice and retail purchasers have begun to prioritize regenerative production, and close partnership with these organizations has become a viable pathway to improved profitability. Just as patrons of local farmers markets speak directly with producers about their farming practices to get comfortable paying fair prices for regeneratively grown crops, large institutional purchasers form their own opinions about farming practices without relying on a certification framework and can compensate producers accordingly. Working with large buyers also offers several advantages to regenerative farmers such as guaranteed bulk purchases; direct offtake agreements; and de-risking future efforts to increase scale. Thoughtful purchasing can similarly help foodservice providers to grow their market share through intelligent brand management while avoiding passing costs on to consumers.

Rafi Taherian, who helps to lead food sourcing at Yale University, is a leading proponent of what he calls values-based purchasing. “A solely price-focused approach will ultimately marginalize our other value propositions important in sourcing. Today more than ever, we need to explore value propositions that may directly and indirectly influence our sourcing, such as where, who, and how the product was produced,” he said. “We partner with those producers who are able to supply the amount we need, aligned with our value proposition.”¹⁸ Because Rafi’s purchasing philosophy is not tied to a particular third-party standard, he is able to seek out and reward producers who are managing their operations in positive ways that may not conform with leading certification programs. This might also mean sourcing from a partner that outperforms peers on farmworker welfare, a topic that falls outside the remit of certifications like USDA organic. Flexible commitments to supporting regenerative food systems have a far-reaching impact: Each day, Yale Hospitality provides over 15,000 meals to students, faculty, and staff.¹⁹

Some of the nation’s largest retailers are taking a similar approach by offering producers meaningful support for regenerative transitions and seeking to integrate more regenerative farmers into their supply chains.²⁰ According to Charlie Governali,





a supply chain manager at Costco, doing so enables retailers to secure long-term access to food that is produced to the high standards of social and environmental sustainability their brands require. Because comparatively few farmers have adopted regenerative practices to date, large firms with complex global supply chains increasingly see investing in farm transitions as being crucial for meeting regenerative sourcing goals. To encourage adoption, many retailers, such as [McCain Foods](#), [General Mills](#), [Nestlé](#), and [PepsiCo](#) have published their own regenerative frameworks. These retailers are hoping that by putting their frameworks in the public eye they can boost consumer spending, attract more reliable regenerative supply, and convince farmers to convert to their practices at a broad scale.²¹ While these corporate standards are, with the notable exception of PepsiCo,²² practice-based rather than outcomes-based, they may represent the fastest pathway to scaling regenerative agriculture in the US today.

Smaller retail purchasers have also proven that they can play catalytic roles in enabling regenerative transitions by providing financial support that reduces the need for farmers to take on conventional debt. For example, the direct-to-consumer meal service [Daily Harvest](#) has guaranteed offtake at premium prices for growers within their supply chain who are seeking to transition to regenerative production,²³ helping them to navigate the initial period of higher costs and lower yields with less uncertainty.²⁴

However, while working directly with institutional purchasers can clearly offer meaningful benefits, the reality is that gaining access to large institutional buyers is a challenging endeavor for many regenerative farmers. Beyond the initial hurdle of connecting with institutional purchasers, growers can also expect to face rigorous and costly quality standards and may be required to scale production over time. While corporate partners may allow farmers to pursue regenerative practices more flexibly than certification frameworks, they still have opinions about which practices a farmer should employ, meaning farmers need to relinquish agency over on-farm practices to keep sales. Some interviewees also cited inadequate local infrastructure as a key barrier to working with large foodservice or retail partners: One New England livestock farmer pointed to the severe shortage of mid-scale meat processing facilities in the Northeast as a key bottleneck. Without timely, predictable, and cost-efficient access to a slaughterhouse, this farmer struggles to provide the kind of consistent supply that would enable him to nurture a corporate buyer relationship.



As our New England livestock farmer shows, without the type of infrastructure investment long established in conventional farming, it will remain difficult for regenerative farmers to capitalize on the growing interest of food service providers. Fortunately, other investors are coming alongside to build the industry infrastructure for regenerative agriculture. The [Black Farmer Fund](#), for instance, not only funds farmers but also food entrepreneurs who help connect farms to consumers through processing and distribution channels. As these investments in transitions and ecosystems scale, certifications are no longer the only pathway for realizing profitability.

Environmental Markets: ‘Cherries on Top’

Farmers who have adopted regenerative practices often report concrete agroecological benefits such as CO₂ sequestration or pollinator habitat that reach far beyond the farm gate. The Farm Services Agency has long operated a [Conservation Reserve Program](#), a popular program where certain farmland is taken out of production in return for government payments. Yet despite this well-established program and the early promise of ecosystem services markets, for regenerative farmers today the sale of carbon credits or participation in other environmental programs is logistically challenging and a small source of income that more than one interviewee called a ‘nice to have’, or “a cherry on top.” This section will examine the challenges and opportunities of participating in the most well-developed ecosystem services marketplace—voluntary carbon credits—and then share interviewees’ perspectives on other ways that the environmental benefits of regenerative agriculture might yield financial profits.

The Challenge of Carbon

The first challenge regenerative farmers face in joining carbon markets are the operational investments required to monitor and verify carbon outcomes. Although some interviewees did mention the dollar value of enrollment costs as a pain point, the value of their time was more commonly cited as the primary driver. Questionnaires and user interfaces were described as complex or poorly designed, requiring substantial time commitments just to enroll. This friction, they said, can inhibit some farmers’ participation in carbon markets despite their use of eligible practices. Long time horizons and lack of flexibility were also cited as a non-starter for farmers. Because regenerative practices may take several years to yield durable improvements in soil organic carbon, many registries ask farmers to contractually commit to using these practices for five years or longer.²⁵ While owner-operators may not find these



requirements problematic, those who work short-term land leases find these commitments an insurmountable obstacle. As a result, agricultural carbon markets are still quite nascent. Talk of carbon credits seems to be in the news every day, but the value of all agriculture-based voluntary carbon credits transacted in 2021 was only \$8.7 million,²⁶ less than 0.01% of annual agricultural finance flows.^{27, 28}

Looking Beyond Carbon

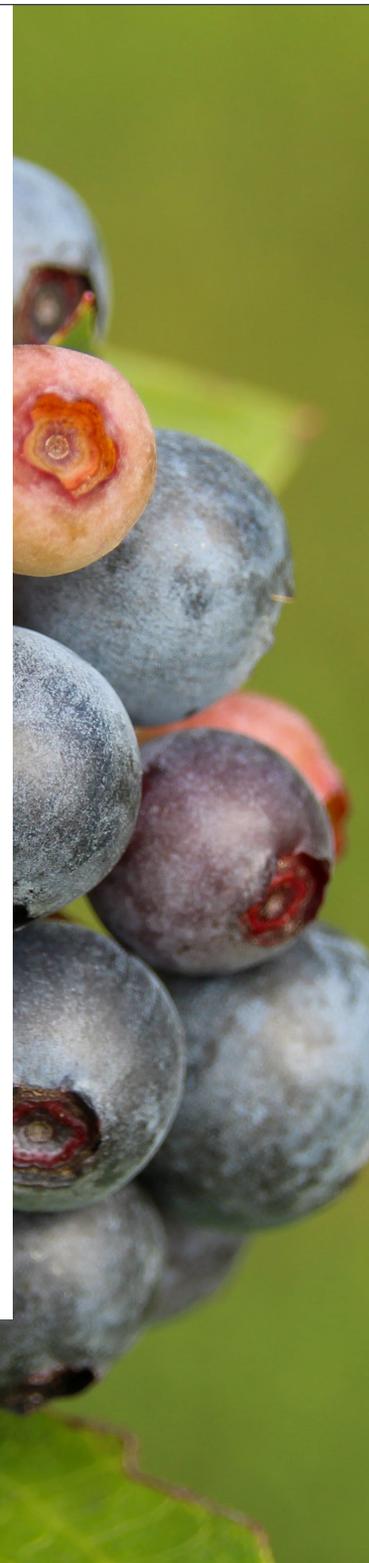
In the absence of a robust carbon marketplace, some regenerative farmers have sought to monetize other environmental benefits. For example, [Farmland LP](#) has published impact reports in partnership with [Earth Economics](#) and [Delta Institute](#) that provide detailed third-party accountings of the estimated dollar values of their farms' ecosystem services. While these ecological benefits may not be marketable today, efforts such as this serve as much-needed quantitative examples that can help push regulators and other actors toward rewarding regenerative farmers for the public benefits that they produce. Farmers we interviewed also reflected on how improvements to farmland ecosystems should be, but often are not considered in property assessments at a land sale. Some purchasers may examine water retention or soil biology, but a full accounting of ecosystem services is far from standard practice.²⁹ Another interviewee argued regulators should aggressively penalize—rather than subsidize—practices known to be harmful rather than requiring regenerative farmers to quantify benefits. But despite the remaining hurdles, it appears that the ecosystem marketplaces are poised to continue growing in prominence and scale over the coming years. As such, ecosystem market revenue may become an increasingly important consideration for prospective regenerative farmers and the investors who are underwriting their operations.



HOW REGENERATIVE FARMERS DO (OR DON'T) ACCESS CAPITAL

One of the trickiest aspects of managing an agriculture operation—be it a small farm or large agribusiness—is cash flow. Farms need cash for seed purchases, input, and labor through the growing season, but don't get paid until the harvest is sold. Farmers who sell right at harvest face low prices in a market flooded with supply while those who hold their produce longer must pay storage costs and handle bills that are coming due. Add the cash needed for repairs or new equipment, down payments for new farmland, and insurance premiums, and it is no wonder why even conventional farmers are searching for reliable capital sources. Farmers wishing to switch their acreage to regenerative practices must find even more capital. No-till agriculture requires specialized equipment such as seed planting drills and roller-crimpers. Cover cropping requires paying for more seed, fuel, and labor to plant the cover crop, at a time when most farmers are paying bills from the previous season. Continuing education to learn regenerative techniques, soil testing and monitoring, and increased labor costs simply add to the bill and are steepest in the early years of a transition while revenue is lowest.

Given the need, it is not surprising there is considerable money in agricultural finance. Outstanding loans in the farm sector were worth \$354B in 2022, almost 6% higher than the previous year.³⁰ This debt is backed by four trillion dollars in assets; chiefly real estate but also infrastructure improvements, equipment, and the value of crops and livestock on farm.³¹ Supporting the industry is a diverse landscape of private, governmental, and quasi-governmental lenders and investors offering a wide array of products, loans, and financing mechanisms. But with few exceptions, they are geared towards conventional agriculture operations and hesitant to fund regenerative farms. As a result, new and even established regenerative farmers are stuck with little access to long-term funding or working capital, making a difficult enterprise even more challenging. This section explores why traditional sources of lending fall short for regenerative agriculture, and how an innovative cohort of private investment firms is emerging to rapidly and equitably meet regenerative farmers' financial needs.



The Problem with Traditional Sources of Capital

Given that regenerative farming practices are widely acknowledged to increase both farm resilience and profitability over the long term, one might expect that agricultural lenders would be eager to finance their adoption. Unfortunately, this is far from the case today. The financing landscape has remained persistently inadequate to meet the needs of regenerative farmers. A recent report by the Environmental Defense Fund (EDF) titled “[Financing Resilient Agriculture](#)” succinctly frames the disconnect:

“There are several ways in which agricultural loans currently create disincentives for farmer borrowers who want to adopt [regenerative] practices. They include information gaps or lender unfamiliarity with the return profiles of the practices, the short-term focus on annual operating loan repayment to the detriment of long-term profitability and financial stability, and loan terms that do not align with the transition to [these] practices or accord value to them.”

Short-termism is the most fundamental challenge of all those listed by EDF. As Philip Taylor the founder of Mad Agriculture observed, “reinvestment back into soil health requires a much longer timeframe of at least five years, if not 10 years.”³² Given it often takes multiple harvest cycles to begin realizing the long-term benefits of regenerative practices, loan products that require rapid repayment of principal will be very difficult for transitioning farmers to manage.

This challenging return profile—requiring several years of reduced profitability before financial benefits begin to accrue—bears an obvious similarity to the one USDA organic farmers have faced for decades. Fortunately, based on the clear revenue benefits that organic certification provides, some lenders have developed ‘transition loan’ products that defer repayment during the initial period of adoption. EDF recently published another report on how this model can support regenerative agriculture, even without organic certification. Titled “[Banking on Soil Health](#),” it provides a framework to help lenders quantify and underwrite soil health benefits in a way that mirrors organic transition loans, in which profitability improvements are driven by a reduction in tillage and input costs and long-term yield resilience in the face of volatile weather conditions. But despite their promise, it is important to acknowledge that even USDA organic transition loans are still considered niche farm lending products.³³ Although many consumers have grown accustomed to seeing organic products in grocery stores, the reality is that less than 1% of American farmland is currently under certified organic production.³⁴ Outside of hotspots of organic farming, most lenders are unfamiliar with these tailor-made financing instruments for regenerative farming.



Although there is substantial progress to be made, traditional lenders are beginning to offer an increasing number of novel loans specifically for regenerative farmers. For example, on the federal and quasi-governmental side the [Farm Service Agency](#), [Natural Resource Conservation Service](#), and the [Farm Credit Council](#) have all recently sought to emphasize and expand their support for practices that many consider regenerative. On the traditional banking side, a notable recent entrant into agriculture lending is New Hampshire-based [Walden Mutual Bank](#). The first FDIC-insured mutual bank to launch in over 50 years, Walden Mutual markets itself as “a new sustainable farm and food-focused digital bank,” and offers a range of financial services that are designed to be flexible and support regenerative agriculture.^{35, 36}

New Financiers Step into the Gap

As farmer interest in transitioning to regenerative practices has grown increasingly mismatched with traditional lenders’ willingness to provide capital, a handful of innovative firms have emerged to meet farmers’ needs.³⁷ While the dollar value that these firms deploy over the coming years will only comprise a small slice of the nearly \$200 billion commercial agricultural loan market in the United States,³⁸ their approaches to financing regenerative agricultural practices have the potential to inform the wider sector in the near future. The ability of firms to do exactly that will determine how quickly regenerative agriculture can be adopted at scale. “We have to focus on building the types of capital stacks that the broader market can understand,” said Brandon Welch, Co-Founder and CEO of [Mad Capital](#), “rather than creating specialty financing that’s so boutique it won’t be applicable to the institutional capital market.”³⁹

One of the early entrants to regenerative finance, Mad Capital is a full-service lender for current or prospective regenerative growers, providing the transition loans described in the previous section as well as working capital and traditional land or equipment financing. For these more-traditional loan products, Mad Capital seeks to differentiate itself through its willingness to flexibly underwrite farms that employ regenerative practices. Driven by a similar conviction, Farmers Business Networks (FBN) and the Environmental Defense Fund recently partnered to develop the [FBN Regenerative Agriculture Finance Fund](#). Rather than attempting to create an entirely new product, the fund enables regenerative farmers to receive interest rate discounts on loans provided through FBN’s existing operating line of credit program.⁴⁰ According to Maggie Monast of EDF the fund is “integrating the proven value of [regenerative] practices” into agriculture loan underwriting instead of just shoehorning a subsidy into the product.⁴¹

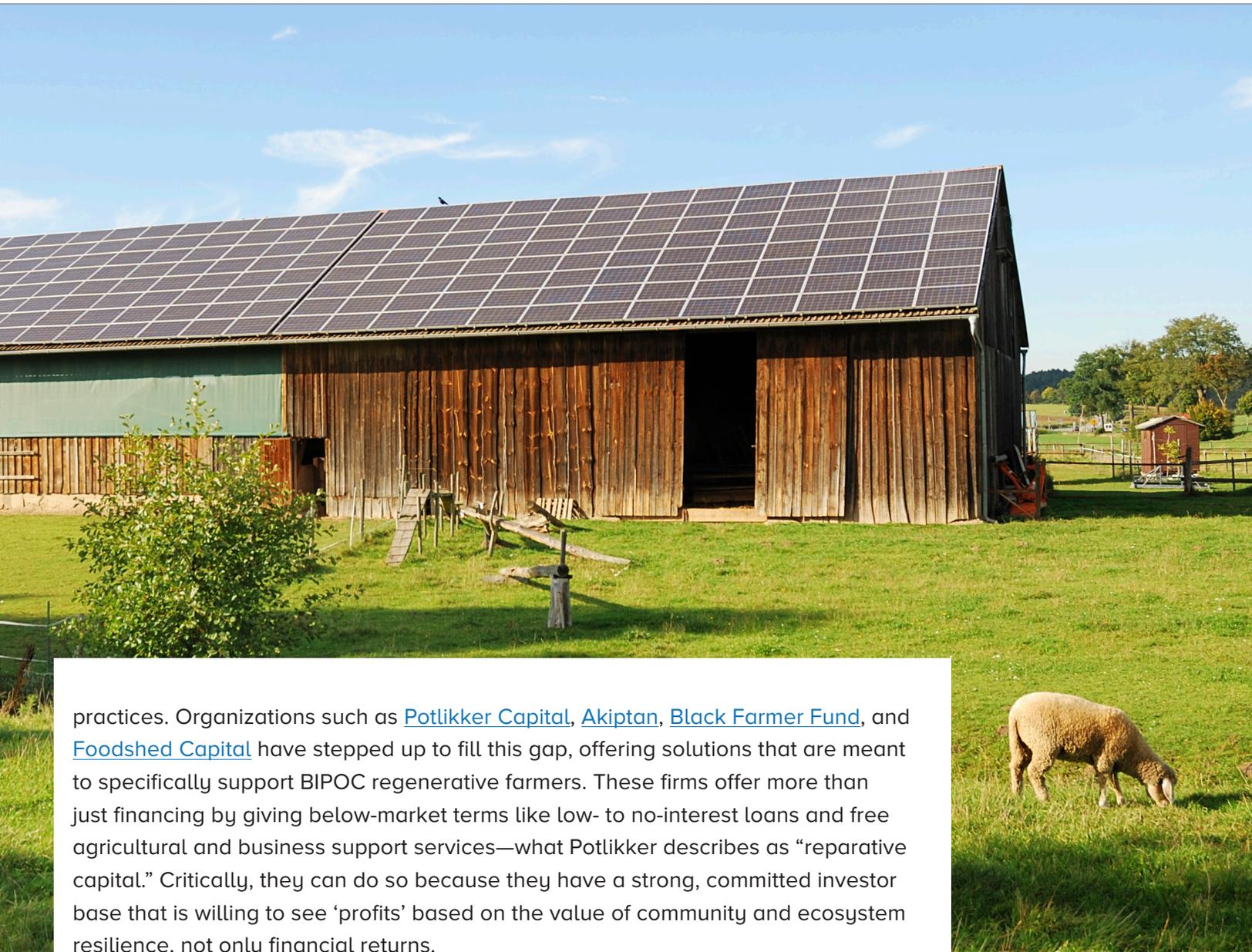


In addition to the alternative lenders providing regenerative capital, some firms have partnered with farmers through equity or quasi-equity investments in farmland itself. For example, [Dirt Capital Partners](#) works directly with experienced regenerative farmers to provide financing for land purchases and capital improvements. The firm determines financing structures on a case-by-case basis, utilizing lease-to-own or profit-sharing arrangements to help farmers establish land tenure. Dominick Grant, a Partner at Dirt Capital, describes the firm's approach as investing in the farmer, not just the farm. "We operate as if the farmer owns the land from the first day. We are there to support them, but we are not controlling the farm as closely as those who view the farmer as 'just an operator' to be managed."⁴² They also partner with groups like [Kitchen Table Advisors](#) to provide the business advising and relationship building essential to both equity and success for the farmers. Others, like [SLM Partners](#), work with experienced organic grain farmers to identify viable plots of land for expansion, purchase that land, and then enter into long-term flexible lease agreements at affordable rates that accommodate the upfront cost of organic transition.

Other platforms take a different tack, making equity investments in regenerative farms by buying portions of the farm as a company. Funds such as [Biome Capital Partners](#), [Alder Point Capital](#), [Fractal Ag](#), and FBN's [Farmland Capital](#) have focused on the role that their firms can play in unlocking value stored in a farm's business. Monetizing a portion of a family farm's value can provide expanding farmers with capital for land purchases, or give an older generation the ability to retire comfortably without selling their farm. Because many farmers prefer not to take on mortgage debt, minority equity investments can be a compelling alternative. These firms become co-owners with farmers using flexible financing to invest in the long-term health and productivity of the farm. Depending on the specific goals of the farmer, investors can make money over the long term either through gradual payments by the farmer over time or sale of the properties when the farmer moves on. While they can provide much-needed value to farm owner-operators, interviewees noted that these co-ownership transactions can be challenging; the balance between short-term funding for farmers and long-term profits for investors can be tricky to navigate.

Another subset of new firms are pursuing equity-focused investing in an entirely different sense. Black, Indigenous and Person of Color (BIPOC) individuals represent nearly 40% of the U.S. population, yet they operate less than 5% of the nation's farms and cultivate less than 1% of its farmland.⁴³ BIPOC farmers have long experienced discrimination by and exclusion from the agricultural credit system, and often find it particularly challenging to secure financial support for regenerative





practices. Organizations such as [Potlikker Capital](#), [Akiptan](#), [Black Farmer Fund](#), and [Foodshed Capital](#) have stepped up to fill this gap, offering solutions that are meant to specifically support BIPOC regenerative farmers. These firms offer more than just financing by giving below-market terms like low- to no-interest loans and free agricultural and business support services—what Potlikker describes as “reparative capital.” Critically, they can do so because they have a strong, committed investor base that is willing to see ‘profits’ based on the value of community and ecosystem resilience, not only financial returns.

Considered together, the firms mentioned above are laying the groundwork for investing in regenerative agriculture at scale. Beyond showing how established loan products can be adjusted to support regenerative farming, firms are also experimenting with more novel farmland investment approaches that have the potential to shift lenders’ portfolios over the long term. But the question remains: If regenerative farming is profitable, and financiers can make money funding it, why isn’t everyone doing it?

STRUCTURAL AND SOCIAL BARRIERS TO ADOPTION



Despite regenerative agriculture's compelling value proposition, there are many farmers who may feel unable or unwilling to change their practices for reasons that have little to do with access to capital. This section focuses on two barriers to adoption for regenerative agriculture, looking at underlying reasons that farmers may never discuss transition financing in the first place.

Land Tenure: Short-Term Leases Prohibit Long-Term Thinking

The USDA estimates that 40% of farmland in the United States is leased, often from retired farmers or farmers' descendants who have inherited the land,⁴⁴ and that approximately 70% of these lease agreements are renewed annually.⁴⁵ Given regenerative practices take several years to yield concrete benefits, farmers on leased land have little incentive to change their practices. Exacerbating the issue, landowners who lease their land are often not rewarded by higher land values (unless they raise the rent) so are not likely to demand better practices. Profit- or revenue-sharing leases offer a way to share in the upside of regenerative farming, but are riskier, and require strong financial savvy for the landlord and the lessee. Any farmer implementing regenerative practices on leased land needs confidence that she will be working a given field for many years or they will face substantial up-front risk without any certainty in benefits. While a lack of land tenure likely holds back many farmers over the short-term, the outlook looks somewhat more positive when one looks one or two decades ahead. The National Young Farmers Coalition estimates that two-thirds of the farmland in the United States is likely to change hands by 2040.⁴⁶ The examples provided in previous sections offer a hopeful alternative vision of how the structure of farmland ownership could evolve over the same period; whether it is getting land in the hands of younger farmers, or through new, long-term methods of lease or communal farming.

Impatient Investors Hamstring Long-term Investments

Private capital likes to position itself as more conducive to patient, long-term investments than the vagaries of the public market.⁴⁷ Yet with a typical fund horizon of seven to ten years and incentives for early exits, many private funds still face investment timelines shorter than a regenerative farmer might need. To make the math explicit: an investor with a seven-year fund, in the second year of their investment period, will have at most five years before needing to sell a farmland investment. Given that it can take five to seven years for a farm to recover from intensive conventional agriculture, the timelines of the regenerative farmer and the investor only line up in the best of scenarios.

Some private investors have realized this problem and structured their funds differently from the outset. Long-dated funds or evergreen funds which have no close date can take a longer view and are more suited for agriculture investing. Funds that run holding companies, such as [Agriculture Capital](#), can buy and hold farms indefinitely, running them in accordance with the regenerative principles of their LPs (Agriculture Capital has put considerable thought into their principles, which they call the AC Way).⁴⁸ Other funds, such as Dirt Capital, structure individual investments to be long-term, choosing between lease-to-own, profit sharing, or more traditional debt instruments to meet the needs of a specific farm and farmer. [Walden Mutual Bank](#) has created a financing model built on small retail deposits, offering below-market interest rates in return for investment opportunities in local regenerative food systems. In each case, the fund has found partners who are willing to wait for their capital to appreciate, who are mission-aligned, and, critically, have faith that regenerative farming can be more profitable in the long run. These LPs are typically public pension or insurance funds, high net-worth individuals, or retail depositors who have a connection to a fund's mission.

The Role of Trust and Community

“I probably won't want to talk to you if you don't have dirt under your fingernails.” This statement made by a cattle farmer in southern Virginia may have been a bit hyperbolic, but the sentiment is one we encountered time and again during our interviews. It speaks to two values many farmers have which are not captured in a financial model: community and place. Unless investors can understand, incorporate, and respect those values, they will miss the point of the regenerative movement and struggle to productively work with any farmer they engage. Farmers and investors both know that working with nature is an inherently complex endeavor. Growing conditions vary from one side of a valley to another, drainage conditions vary from





field to field, and pests can decimate one crop and leave the neighboring one untouched. Aside from being inherently frustrating, this variability means that advice is often difficult to give from a distance. Local contextual concerns outweigh most general principles, especially for farmers who work *with* natural processes, rather than bend them to their will. Farmers, not academics or investors, will always be the best advocates for changing farming practices.

As our interviewees emphasized, if farmers know one thing it is the hyper-local agricultural context of their farmland. According to the National Bureau of Labor Statistics, in 2022 the average finance employee had been at her job for ~5 years. That is longer than the nationwide average of 4.1 years,⁴⁹ but it pales in comparison to the deep roots farmers sink in their communities: The median producer in the United States has been running his farm for more than 21 years.⁵⁰ The farmers we spoke with stressed that their wealth of experience gives them a deep, intuitive understanding of a place, what works and what does not, what has been tried before, and what has yet to be tested. That understanding has been earned through years of hard work, and investors who discount this experience do so at their own peril.

To build up a local, contextually relevant body of knowledge, farmers will often rely upon tight-knit social networks within their communities. These networks are not just sources of advice, but social support networks: helping farmers find information or labor, rent or borrow unused equipment, or just find camaraderie. Investors will be hard-pressed to build a similar suite of services or level of trust with farmers. A tight social network of support can have significant upsides to a regenerative farmer: If she is surrounded by like-minded individuals, they can be a source of inspiration to persevere through the initial down years in a regenerative transition. Profitable and successful regenerative farmers demonstrate to their neighbors the power of restoration, seeding supportive networks for others in their community. More often, though, regenerative farmers find themselves surrounded by networks that discourage practices that go against the grain or are not widely accepted, hampering any transition. One interviewee noted just how powerfully the source of advice and support influences farmer decision making. His regenerative carbon program saw the greatest



uptake in cases where practices such as cover cropping were endorsed by trusted business partners or input providers, or in places where nonprofit organizations such as the Nature Conservancy had already been working in a community for years. In areas without this community support, uptake was slower and recidivism (returning to conventional farming) much higher.

For financial services providers, this means that developing the right types of investment alone is unlikely to achieve the scale they seek. Farmers are the best advocates for changing farming practices, and communities will play pivotal roles in determining the pace of culture change. Investors must commit to local engagement, to listen with humility, and to respond to farmers' concerns in a way that acknowledges their expertise as stewards of the land.



WHERE DO WE GO FROM HERE?

As discussed earlier, regenerative agriculture and the financing structures supporting it ought to be place-based and outcomes-focused, rather than a set of global dos and don'ts. This makes it difficult to make global recommendations for investors and farmers; by necessity they should vary based on the specifics of the investment in question. However, interviewees suggested a few global lessons that both investors and farmers should take to heart:

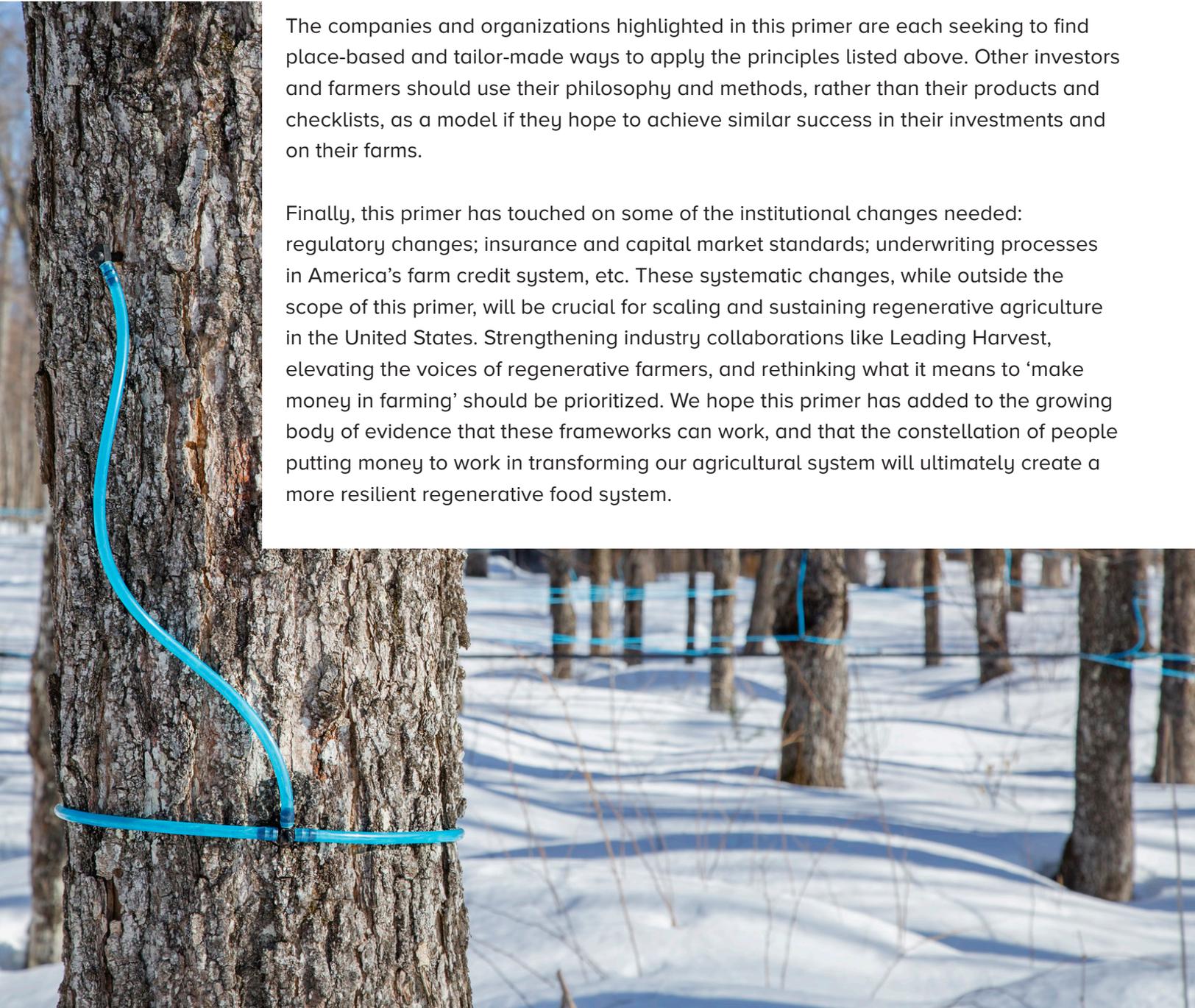
- **Find the right partner**

- Investors need mission-aligned, patient LPs. Market-rate returns are possible, but only over the long term.
- Farmers need investors who trust them to do what is best for their land and community, and who are willing to wait for years to see promises realized. Look for someone with more of a venture capital mindset, as they tend to be longer-term investors.

- **Don't be dogmatic**

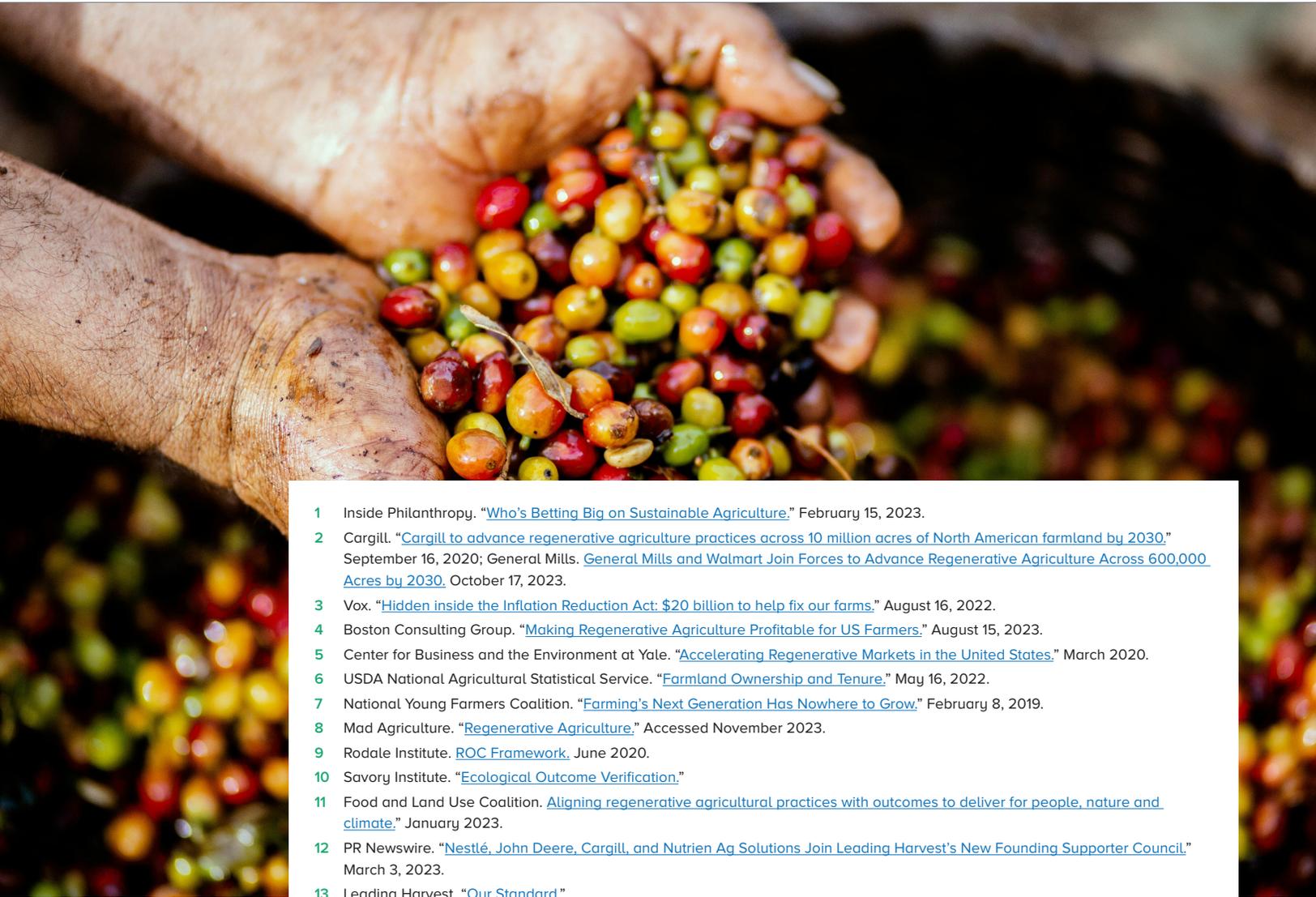
- Investors who show up to a farm with a checklist, scorecard, or whitepaper (like this one!) will likely start on the wrong foot. Listen first, let the farmer pitch their vision. Find points of alignment and use those as a starting point.
- Farmers should realize that sometimes promising ideas can come from outside the farm. It is easy to dismiss some proposals, but investors who have done their homework likely have good ideas for on-farm improvements or financial structures to support them. Listen to them, use their networks, and build a community that will support you as you start to do things differently.

- **Bring as many tools to the conversation as possible**
 - Investors should consider a wide array of financing instruments, debt, equity, profit-sharing, sale-leasebacks, etc., when considering how to support a farmer's regenerative transition. Even if investors cannot wield every tool, building a network of partners who can bring additional products alongside your own will build flexibility and create durable success far faster than a 'go-it-alone' strategy.
 - Farmers need to recognize that they can't sustain a long-term transition on their own. Find others in your community who may be supportive: Other farmers, extension agents, input suppliers, or even online communities whose values are similar to yours. Don't be afraid to lean on them and consider their expertise as tools in your own toolbox.



The companies and organizations highlighted in this primer are each seeking to find place-based and tailor-made ways to apply the principles listed above. Other investors and farmers should use their philosophy and methods, rather than their products and checklists, as a model if they hope to achieve similar success in their investments and on their farms.

Finally, this primer has touched on some of the institutional changes needed: regulatory changes; insurance and capital market standards; underwriting processes in America's farm credit system, etc. These systematic changes, while outside the scope of this primer, will be crucial for scaling and sustaining regenerative agriculture in the United States. Strengthening industry collaborations like Leading Harvest, elevating the voices of regenerative farmers, and rethinking what it means to 'make money in farming' should be prioritized. We hope this primer has added to the growing body of evidence that these frameworks can work, and that the constellation of people putting money to work in transforming our agricultural system will ultimately create a more resilient regenerative food system.



- 1 Inside Philanthropy. "[Who's Betting Big on Sustainable Agriculture.](#)" February 15, 2023.
- 2 Cargill. "[Cargill to advance regenerative agriculture practices across 10 million acres of North American farmland by 2030.](#)" September 16, 2020; General Mills. "[General Mills and Walmart Join Forces to Advance Regenerative Agriculture Across 600,000 Acres by 2030.](#)" October 17, 2023.
- 3 Vox. "[Hidden inside the Inflation Reduction Act: \\$20 billion to help fix our farms.](#)" August 16, 2022.
- 4 Boston Consulting Group. "[Making Regenerative Agriculture Profitable for US Farmers.](#)" August 15, 2023.
- 5 Center for Business and the Environment at Yale. "[Accelerating Regenerative Markets in the United States.](#)" March 2020.
- 6 USDA National Agricultural Statistical Service. "[Farmland Ownership and Tenure.](#)" May 16, 2022.
- 7 National Young Farmers Coalition. "[Farming's Next Generation Has Nowhere to Grow.](#)" February 8, 2019.
- 8 Mad Agriculture. "[Regenerative Agriculture.](#)" Accessed November 2023.
- 9 Rodale Institute. "[ROC Framework.](#)" June 2020.
- 10 Savory Institute. "[Ecological Outcome Verification.](#)"
- 11 Food and Land Use Coalition. "[Aligning regenerative agricultural practices with outcomes to deliver for people, nature and climate.](#)" January 2023.
- 12 PR Newswire. "[Nestlé, John Deere, Cargill, and Nutrien Ag Solutions Join Leading Harvest's New Founding Supporter Council.](#)" March 3, 2023.
- 13 Leading Harvest. "[Our Standard.](#)"
- 14 Natural Resource Defense Council. "[How Regenerative Agriculture Can Mitigate Drought.](#)" March 22, 2022; Civil Eats. "[Op-ed: Some Regenerative Farms Are Weathering California's Unprecedented Rainfall.](#)" January 13, 2023.
- 15 American Enterprise Institute. "[What Harm is Done by the Federal Crop Insurance Program Today?](#)" April 2023.
- 16 Civil Eats. "[How Crop Insurance Prevents Some Farmers From Adapting to Climate Change.](#)" September 20, 2023.
- 17 SLM Partners. "[Investing in US Organic Grain Production.](#)" May 2019.
- 18 Interview with [Rafi Taherian](#), Associate VP of Yale Dining. September 2023.
- 19 Yale Dining. "[About Us.](#)" Accessed November 2023.
- 20 Walmart. "[Driving Regeneration in Agriculture.](#)" September 1, 2021; Whole Foods. "[Our Commitment to Regenerative Agriculture.](#)" Accessed November 2023.
- 21 Panel discussion at Regenerative Food Systems Summit USA. Chicago. March 30, 2023.
- 22 PepsiCo considers an acre as delivering regenerative impact when the adoption of regenerative agriculture practices results in quantified improvements across at least two of the environmental outcome areas, with a strong preference for removing or reducing GHG emissions to be one impact area.
- 23 PR Newswire. "[Simple Mills and Daily Harvest Announce Trailblazing Partnership to Revolutionize California Almond Farming.](#)" April 19, 2022.
- 24 Conservation Finance Network. "[The Rise of Regenerative Agriculture: How Food Companies are Catalyzing Regenerative Farming Practices.](#)" April 18, 2023.
- 25 Indigo Agriculture. "[Carbon for Farmers.](#)" Accessed November 2023.

- 26 Forest Trends. "[Ecosystem Marketplace](#)." August 2022.
- 27 USDA Economic Research Service. "[Farm Assets, Debt, and Wealth](#)." Aug 31, 2023.
- 28 For a further discussion of the challenges farmers face in accessing carbon markets, read the American Farmland Trust's recent report, "[Agricultural Carbon Programs: From Chaos to Systems Change](#)."
- 29 While some states (Ohio, Illinois, Indiana) use [soil productivity indices](#), they are based solely on the long-term soil characteristics, and do not include measures of soil health based on improved management techniques.
- 30 USDA Economic Research Service. "[Farm Assets, Debt, and Wealth](#)." Aug 31, 2023.
- 31 *Ibid.*
- 32 Bank of the West. "[Means and Matters Podcast: Financing Regenerative Agriculture](#)." December 2, 2021.
- 33 SLM Partners. "[Investing in US organic grain production](#)." May 2019.
- 34 Pew Research Center. "[Organic farming is on the rise in the U.S.](#)" January 10, 2019.
- 35 Bankingdive.com. "[FDIC approves first new US mutual bank in 50 years](#)." October 6, 2022.
- 36 For further discussion of financing opportunities within the regenerative agriculture space, Field to Market's "[Financial Innovations to Accelerate Sustainable Agriculture](#)." is an excellent illustration of the wider landscape of capital solutions available to regenerative farmers beyond traditional finance.
- 37 Crotan Institute. "[Soil Wealth: Investing in Regenerative Agriculture across Asset Classes](#)." July 2019.
- 38 S&P Global. "[Agricultural Loans Rose in Q2](#)." October 4th, 2023.
- 39 AgFunder News. "[Mad Capital closes \\$4m round, aims to shift 10m acres to regenerative ag by 2032](#)." December 13, 2022.
- 40 Farmers Business Network. "[Regenerative Line of Credit](#)". Accessed November 2023.
- 41 Environmental Defense Fund. "[FBN and EDF launch a new farm operating line of credit](#)." January 11, 2022.
- 42 Interview with [Dominick Grant](#), September 2023.
- 43 Union of Concerned Scientists. "[Leveling the Fields](#)." June 2020.
- 44 USDA National Agricultural Statistical Service. "[Farmland Ownership and Tenure](#)." May 16, 2022.
- 45 USDA National Agricultural Statistical Service. "[U.S. Farmland Ownership, Tenure, and Transfer](#)." August 2016.
- 46 National Young Farmers Coalition. "[Farming's Next Generation Has Nowhere to Grow](#)." February 8, 2019.
- 47 Cresset Partners. "[Private Equity Versus Patient Capital: What Entrepreneurs and Investors Need to Know](#)." Accessed November 2023.
- 48 Interview with [Wood Turner](#), April 22, 2022.
- 49 Bureau of Labor Statistics. "[Employee Tenure in 2022](#)." September 22, 2022.
- 50 USDA National Agricultural Statistical Service. "[2017 Census of Agriculture - Producers](#)." April 2019.



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