

SOIL WEALTH

Investing in Regenerative Agriculture across Asset Classes

July 2019

Christi Electris, Joshua Humphreys, Kristin Lang, David LeZaks, and Jaime Silverstein



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ORGANIC AGRICULTURE
REVITALIZATION STRATEGY

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ABOUT THE AUTHORS

Christi Electriss is co-founder and Senior Associate at Croatan Institute. She helped develop a new framework for understanding social and environmental impact investing across asset classes, known as Total Portfolio Activation. Co-author of the Institute's recent paper "Climate-Related Investment for Resilient Communities: Divest Invest Opportunities in Community-Oriented Climate Solutions," she regularly contributes to the thematic application of the Total Portfolio Activation framework to the Institute's Clean Portfolio Project and its work on sustainable food and regenerative agriculture. A computer scientist and quantitative policy analyst by training, Ms. Electriss has designed policy scenario analyses with environmental and social impacts, including the most recent update of Tellus Institute's global sustainability scenarios.

Joshua Humphreys is President and Senior Fellow of Croatan Institute and co-founder and senior strategist of the Institute's Organic Agriculture Revitalization Strategy (OARS). A leading authority on sustainable, responsible, and impact investing and an outspoken advocate for social equity, ecological resilience, and regenerative rural development, Dr. Humphreys has taught at Harvard, Princeton, and NYU, and served in research roles at the Rutgers Center for Historical Analysis, the Rockefeller University, the Johns Hopkins School of Advanced International Studies, and Tellus Institute. Dr. Humphreys also co-founded the Historic Oaks Stewardship Alliance (HOSTA), a rural agrarian community preservation group, and operates Lilymont Terraculture, a small-scale regenerative agro-forestry experiment in Oaks, North Carolina.

Kristin Lang is an Associate at Croatan Institute, where she has focused on rural economic development, sustainable investing trends, and alternatives to fossil fuel investment. She is the project coordinator for OARS and the co-author of "Impact Investing in Sustainable Food and Agriculture across Asset Classes: Financing Resilient Value Chains through Total Portfolio Activation" (2017). Prior to joining Croatan Institute, Ms. Lang worked with Oxfam America, Value for Women, and US SIF: The Forum for Sustainable and Responsible Investment.

David LeZaks leads the Regenerative Food Systems practice at Delta Institute, where he manages a portfolio of projects that focuses on building a more regenerative economy. Previously he led the Agricultural Innovation Prize at the University of Wisconsin–Madison. Dr. LeZaks also recently served as an RSF Social Finance Integrated Capital Institute fellow alongside other financial activists who are leveraging capital as a tool for positive change.

Jaime Silverstein is an Associate at Croatan Institute. She also currently serves as Farm Business Advisor for the Northeast Organic Farming Association of Vermont (NOFA-VT) and sits on the board of directors for Metta Earth Institute, the center for contemplative ecology where she was in residence in 2014. Previously, she has worked for Freight Farms, Slow Money Boston, Sustainable Endowments Institute, and Tellus Institute.

Regenerative farmscape in Ridgeway, Wisconsin. Courtesy of Meadowlark Organics.





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Delta Institute is a Chicago-based nonprofit that works with communities throughout the Midwest to solve environmental challenges. We envision a region in which all communities and landscapes thrive through an integrated approach to environmental, economic, and social challenges. Working with our partners, we identify opportunities for environmental solutions and design, test, and share solutions that yield benefits for communities. For more information about Delta's work, please visit www.delta-institute.org.



The Organic Agriculture Revitalization Strategy (OARS) is an initiative that seeks to take advantage of growing consumer and investor interest in organic food and agriculture—now nearly a \$50 billion mainstream market—and use it as a strategy for revitalizing rural communities and supporting regional economic development. Developed by Croatan Institute and Earthwise Organics with initial support from Organic Valley's Farmers Advocating for Organics program and a growing group of partners, OARS aims to identify business and investment opportunities in regional value chains and to mobilize capital to help build community health and wealth. For more information, please visit www.OARSproject.org.

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EXECUTIVE SUMMARY

SOIL WEALTH: INVESTING IN REGENERATIVE AGRICULTURE ACROSS ASSET CLASSES

As the investment community in the United States, particularly within the fields of sustainable, responsible, and impact (SRI) investing, shows an increasing appetite for investing in sustainable agriculture and food systems across asset classes, a subset of investors is demonstrating growing interest in financing not simply “sustainable” agriculture but agriculture that is deemed explicitly “regenerative.” What “regenerative” means for farmers and investors remains highly in flux, but broadly it tends to refer to more holistic approaches to agricultural systems that work with natural systems to restore, improve, and enhance the biological vitality, carrying capacity, and “ecosystem services” of farming landscapes. Regenerative farming operations also aim to support the resilience of the rural communities and broader value chains in which they are situated.

This report provides the first work product of a three-year project on innovative mechanisms for financing regenerative agriculture, led by Dr. David LeZaks at Delta Institute, with funding from a USDA NRCS Conservation Innovation Grant and support and involvement from 19 additional formal partners. It is designed for a diverse audience of stakeholders, including investors, regenerative agriculture practitioners, food system entrepreneurs, philanthropic funders seeking to advance the field as both grantmakers and investors, and policymakers at local, state and federal levels.

This study quantifies the U.S. landscape of investment funds that explicitly make sustainable food and agriculture or regenerative agriculture part of their investment strategy or criteria across investment asset classes—not only in farmland but also in cash and cash equivalents, fixed income, public equities, and private equity and venture capital. We have also identified a wide range of financial mechanisms, instruments, and approaches commonly used in more traditional conservation or agricultural finance transactions

that could potentially be mobilized more explicitly to support regenerative agriculture outcomes in the future. This report therefore provides a roadmap to guide the development of new investment opportunities in regenerative agriculture. Philanthropy and government funding have critical, catalytic roles to play in creating an environment for more private capital to be mobilized in support of regenerative agriculture that truly delivers on its environmental and social impact potential.

The increasing urgency of addressing climate change has added to this mounting interest in regenerative agriculture and “carbon farming.” To realize the carbon sequestration and climate mitigation potential associated with implementation of regenerative agricultural practices, more than \$700 billion in estimated net capital expenditure over the next 30 years will be needed. Based on our analysis of Project Drawdown’s published data, projected out to 2050, implementing climate-friendly agricultural practices could mitigate nearly 170 GtCO₂e, while generating a nearly \$10 trillion net financial return.

The outcomes from regenerative agriculture can also enhance the biodiversity of farming landscapes, improve the water cycle, and strengthen the broader resilience of both ecosystems and food systems, while bolstering the economies of rural communities. Additionally, these various outcomes and impacts of regenerative agriculture align with several U.N. Sustainable Development Goals, which growing numbers of investors are beginning to integrate into investment decision-making frameworks.

This constellation of benefits associated with building both soil health and community wealth through regenerative agriculture is what we call “Soil Wealth.”

THE LANDSCAPE OF REGENERATIVE AGRICULTURAL INVESTMENT

We have identified 127 US-focused investable strategies, with combined assets under management of \$321.1 billion, that explicitly integrate sustainable food and agriculture thematically or as criteria in their investment process (Figure A). Of this wider universe of sustainable investment opportunities, 70 strategies with combined assets of \$47.5 billion included one or more criteria related to some facet of regenerative agriculture (Figure B). Because asset information could only be identified for 54 of these funds, we view this as a conservative baseline estimate of the size of this rapidly emerging market. While many strategies are discussed throughout the report, a fuller list of investable strategies with regenerative features, categorized by asset class, is included in the Appendix.

OPPORTUNITIES FOR FINANCING REGENERATIVE AGRICULTURE WITHIN ASSET CLASSES

In order to advance the potential that regenerative agriculture presents in mitigating climate change, improving soil health and building community resilience, significant capital needs to be deployed both on farms and across value chains. Our report aims to cultivate understanding of how investors can allocate investments across asset classes to further these efforts. Based on our research and analysis, we have identified several emerging trends along with opportunities for growth and deeper impact in the regenerative agriculture space. Real asset investments in land, private equity investments in companies supporting regenerative agricultural value chains, and private debt investments in farms and firms are currently the leading asset classes, giving the fullest expression to regenerative agriculture as an investment theme. While investment in “sustainable agriculture” remains much larger in terms of assets, we are beginning to see new developments in “regenerative”-specific investments, particularly in public and private equity markets.

MECHANISMS, INSTRUMENTS, AND APPROACHES

The mechanisms, instruments, and approaches being used to mobilize capital within each asset

FIGURE A

INVESTABLE STRATEGIES IDENTIFIED IN SUSTAINABLE FOOD AND AGRICULTURE		
	COUNT	ASSETS (Billions)
Cash and Cash Equivalents	5	\$1.2
Fixed Income: Public Debt	5	\$68.7
Fixed Income: Private Debt	25	\$3.6
Public Equity	15	\$84.1
Private Equity / Venture Capital	39	\$74.4
Farmland / Real Assets	38	\$89.1
Total	127	\$321.1

Source: Croatan Institute.

FIGURE B

INVESTABLE STRATEGIES IDENTIFIED WITH REGENERATIVE AGRICULTURAL FEATURES		
	COUNT	ASSETS (Billions)
Cash and Cash Equivalents	5	\$1.2
Fixed Income: Public Debt	3	\$5.3
Fixed Income: Private Debt	17	\$2.8
Public Equity	4	\$8.4
Private Equity / Venture Capital	12	\$6.9
Farmland / Real Assets	29	\$22.8
Total	70	\$47.5

Source: Croatan Institute.

class and across asset classes are at varying stages of maturation, creating a fertile terrain for expansion and experimentation. We recommend deepening regenerative agriculture features of financing within the most developed alternative asset classes and broadening the use of regenerative themes as ESG criteria for investment research, analysis, decision-making, and engagement in public markets.

Our analysis suggests that farmland, cash, and fixed income as asset classes are ripest for rapid development in part because bank financing remains the leading form of financing farms and businesses in rural communities. We also found that an “ecosystem of accountability” needs to be developed in order to monitor farmland investment funds for their claims about social and environmental impact, particularly when weak or misleading indicators about soil health or other regenerative outcomes are being used. In public-market, fixed-income investing we see considerable opportunities to engage with bond issuers and bond buyers to embed regenerative agricultural features in publicly traded debt securities. Overall, given the demonstrable social and environmental benefits associated with regenerative agriculture, we strongly recommend greater blending of private investment with catalytic sources of capital from philanthropy and government at multiple levels.

For each asset class, we provide a table that identifies a wide range of mechanisms, instruments and approaches that can be mobilized for financing regenerative agriculture. We pair examples of these tools, some of which have not previously been used in this field, with a conceptualization of how the approach might specifically be used to advance regenerative agriculture. Based on our review of the field, we also assess where each mechanism, instrument, or approach falls on a spectrum of maturation: whether it is a future, emerging, rapidly growing, readily scalable, or more established tool for investing in regenerative agricultural value chains (Figure C). Of the 67 mechanisms, instruments, and approaches we inventory, 43 percent are classified at a seed stage for future development, 31 percent are emerging, 19 percent are growing rapidly, and only four percent appear ready to scale. Only one seems firmly established to support regenerative practices, namely, state and federal income tax credits for conservation easements.

The study concludes with a series of recommendations for investors working within each asset class and for stakeholders such as foundations, policymakers, asset owners and asset managers, and regenerative agriculture practitioners.

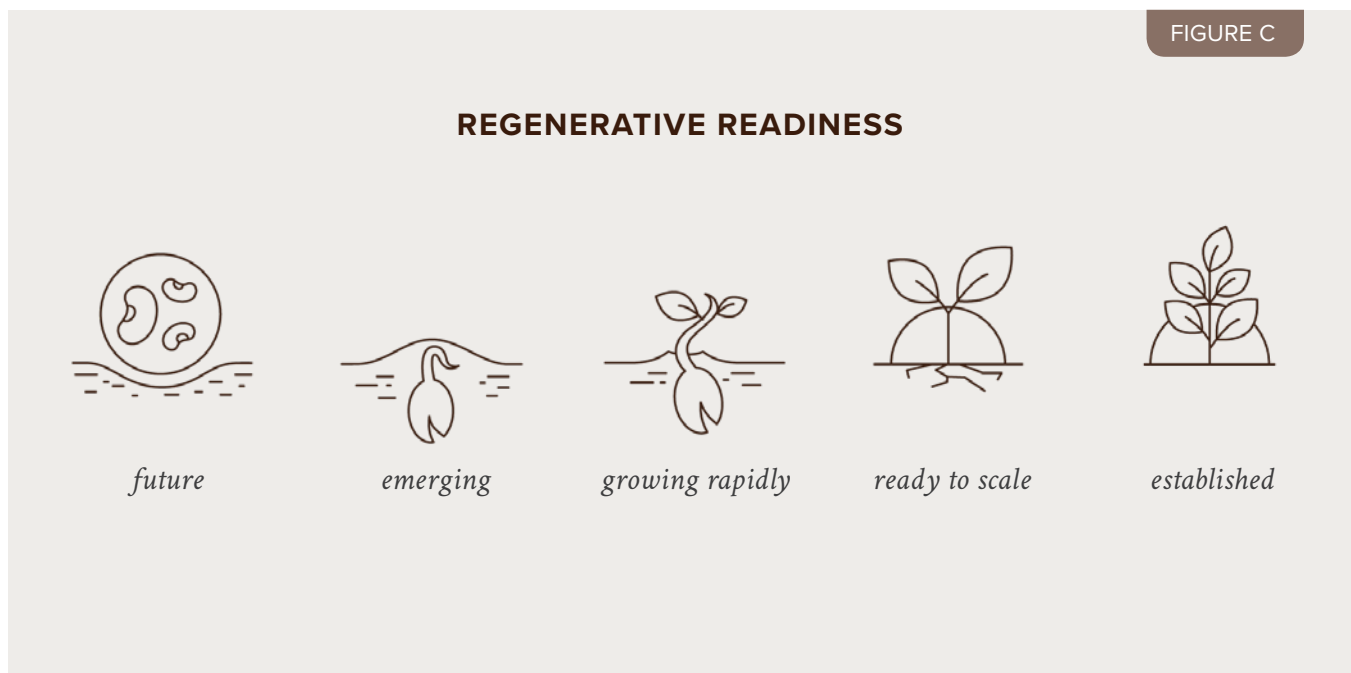


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Cows grazing on rotationally managed pasture. Courtesy of Meadowlark Organics.

INTRODUCTION AND BACKGROUND

The investment community in the United States, particularly within the fields of sustainable, responsible, and impact (SRI) investing, is showing an increasing appetite for investing in sustainable agriculture and food systems across asset classes. According to US SIF Foundation, more than \$1.3 trillion in US investment assets are now reportedly being managed by money managers incorporating considerations related to sustainable natural resource use, including sustainable agriculture.¹ Institutional investors play an important role in providing the vast majority of this capital, led predominantly by insurance companies, but also to a much lesser extent by faith-based investors, philanthropic foundations, health-care institutions, and family offices.²

Motivations for making these kinds of investments vary widely among investors, but a growing number of investors are investing in agriculture as part of broader environmental and social investing strategies to address climate change, to conserve and regenerate natural ecosystems, to foster rural development, to transform food systems in more equitable ways, and to support public health. By contrast, in the aftermath of the farm crisis of the 1980s, an earlier wave of institutional investors, led by wealthy college endowments and insurance companies, began making opportunistic agricultural investments and integrating farmland into alternative asset class strategies that were uncorrelated to conventional asset classes such as listed equities, fixed income, and cash. Managing climate risk, pursuing positive impact, or transforming food systems were simply not part of the rationale for deploying capital

into agricultural investments. However, in recent years, sustainability and the incorporation of environmental, social, and governance (ESG) factors into investment processes have become increasingly important even among major conventional food and agricultural investors. Witness the increasing number of farmland investors, such as Nuveen, International Farming Corporation, and Hancock Agricultural Investment Group, that have become signatories in recent years to the Principles for Responsible Investment (PRI), a global investor network affiliated with the United Nations Environment Program's Finance Initiative and the UN Global Compact, which developed a specific set of principles for responsible farmland investment in 2015. The first PRI guideline for farmland investment, for example, is "[t]o promote measures aimed at protecting the environment and contributing to the sustainability of specific crops and locations, for example by reducing soil erosion, protecting biodiversity, reducing chemical emissions, effectively managing water, and mitigating climate impacts."³

However, investors are increasingly interested in financing not simply "sustainable" agriculture but agriculture that is deemed explicitly "regenerative." What "regenerative" means for farmers and investors remains highly in flux, but broadly it tends to refer to more holistic approaches to agricultural systems that go beyond conservation measures that merely "protect," "manage," or "reduce" natural resources (erosion, emissions, chemical inputs) in a sustainable way. Instead of simply avoiding further degradation and depletion, regenerative agriculture aims to work with

1 US SIF Foundation, "[Report on US Sustainable, Responsible, and Impact Investing Trends](#)," October 2018. "Sustainable natural resources" is a much broader theme than food and ag, including timberland and forestry funds. Most of these assets were managed through uncategorized investment vehicles, highlighting the lack of transparency in this space. The Trends Report did identify 51 property funds with \$53 billion in assets under management and 12 hedge funds with \$2 billion in AUM, incorporating criteria related to sustainable natural resources into their investment process.

2 Ibid. Insurance company portfolios incorporating sustainable natural resource criteria were \$561 billion in AUM at the outset of 2018. Each of these other types of institutional investors had assets dedicated to this theme in the \$2-\$7 billion range.

3 PRI, "[Responsible Investment in Farmland](#)," July 2015.

natural systems to restore, improve, and enhance the biological vitality, carrying capacity, and “ecosystem services” of farming landscapes. Regenerative farming operations also aim to support the resilience of the rural communities and broader value chains in which they are situated.

Drawing upon a wide range of traditions and techniques, including organic, agroecological, biodynamic, and permacultural farming systems, as well as actively managed, rotational livestock grazing across perennial pastures and silvocultural landscapes, regenerative agriculture practitioners use strategies that aim to deepen soil carbon, improve soil health and fertility, infiltrate more water, and increase biodiversity (See Box 1).

Practices vary widely but tend to focus on techniques that minimize soil disturbance, maintain four-season soil coverage using cover crops and diversified crop rotation, and enhance soil quality with compost and natural soil amendments rather than synthetic chemical fertilizers, sprays, and inputs. Depending on what farmers are producing and the scale of their operations, they may focus on minimally or no-tilled row crops, vegetables, agroforestry, multi-paddock managed grazing, or silvopasture. For those integrating livestock into their operations, animal welfare and holistic husbandry are critical components for regenerative agriculture systems.

By taking holistic systems approaches, regenerative agriculture practitioners often also integrate social

BOX 1

FROM THE FIELD: WORKING DEFINITIONS OF “REGENERATIVE AGRICULTURE”

Rather than utilize any single, fixed definition of “regenerative agriculture,” this analysis instead aims to reflect its diverse usage by practitioners in the field. Although the term has long been used in limited ways by pioneering farmers, regenerative agriculture has recently experienced a rapid uptick in usage over the last five years, and with that growth, the term has developed a multitude of different meanings. For example, Ethan Roland Soloviev, an entrepreneur who helped develop Terra Genesis International’s framework of “Levels of Regenerative Agriculture,” has distinguished five different “lineages” of Regenerative Agriculture, to which we add three more distinctive strands.*

RODALE ORGANIC

One of the earliest developments of regenerative agriculture principles was Rodale Institute’s formulation of “regenerative organic” agriculture, a holistic approach to farming that encourages continuous improvement of environmental, social, and economic measures. Rodale Institute, based in Kutztown, Pennsylvania, has formalized these principles into a new Regenerative Organic Certification, which builds upon existing certified organic standards and then goes beyond them by encompassing pasture-based animal welfare, fairness for farmers and workers, and robust requirements for soil health and land management.

Global organizations such as Regeneration International and academic centers such as the Regenerative Agriculture Initiative at California State University, Chico, share many of the same foundational concerns as Rodale Institute, rooted in certified organic systems. Chico State and the Carbon Underground have developed an evolving, working definition of regenerative agriculture that Regeneration International also embraces. The “Chico State Definition” describes regenerative agriculture as “a holistic land management practice that leverages the power of photosynthesis in plants to close the carbon cycle, and build soil health, crop resilience and nutrient density. Regenerative agriculture improves soil health, primarily through the practices that increase soil organic matter.”**

PERMACULTURE AND “REGRARIANS”

A movement led initially by Australian practitioners Bill Mollison and his student David Holmgren in Tasmania in the 1970s, “permanent agriculture,” or permaculture, became a set of social and ecological design principles for reintegrating farming with nature, often in small-scale ways with a focus on

developing perennial landscapes. Over the last decade, a group of self-described “regenerative agrarians,” or “Regrarians,” also based in Australia, have built upon the permaculture movement to develop a more outcomes-based approach to ecological landscape design.

HOLISTIC MANAGEMENT

Associated with the multi-paddock, pasture-based rotational grazing practices of Zimbabwean rancher and environmentalist Allan Savory, Holistic Management involves actively integrating livestock into the process of restoring degraded grasslands to sequester soil carbon, build drought resilience, fight desertification, develop food security, and foster financially viable communities. The Savory Institute, based in Boulder, Colorado, educates farmers about Savory’s practices in order to foster the large-scale regeneration of the world’s grasslands. The Institute has its own certification system called Ecological Outcome Verified (EOV) that provides an “outcome-based” approach to assessing soil health, biodiversity, and ecosystem function.

REGENERATIVE PARADIGM

In this lineage, regenerative agriculture is merely one of many applications of regenerative systems development associated with organization effectiveness gurus such as Charles Krone of Procter & Gamble and Carol Sanford of the Carol Sanford Institute who apply living systems thinking to business design. This lineage is the one with which Soloviev himself most closely aligns, along with others in communities of practice associated with Terra Genesis International, the ReGen.Network, Regenerative Enterprise Institute, and Regenesi. According to Terra Genesis International, Regenerative agriculture in this paradigm is “a system of farming principles and practices that increases biodiversity, enriches soils, improves watersheds, and enhances ecosystem services. Regenerative Agriculture aims to capture carbon in soil and aboveground biomass, reversing current global trends of atmospheric accumulation. At the same time, it offers increased yields, resilience to climate instability, and higher health and vitality for farming and ranching communities. The system draws from decades of scientific and applied research by the global communities of organic farming, agroecology, Holistic Management, and agroforestry.”

SOIL PROFITS

The final lineage in Soloviev’s framework is associated with practitioners who began their careers as conventional farmers, ranchers, and soil scientists but later became specialists in soil health-building practices such as no- or low-till farming, cover cropping, crop rotation, and polycultural grazing. Rather than embrace organic certification or holistic system design, practitioners within the soil profits paradigm tend to focus on the economics of conservation agriculture and the cost savings of declining reliance on inputs. North Dakota rancher Gabe Brown and former USDA Natural Resources Conservation Service soil scientist Ray Archuleta are among leading spokesmen of this approach to regenerative agriculture. Soloviev sees this lineage as the primary passage through which regenerative agriculture is attracting mainstream attention today. Arguably, organizations such as the Soil Health Institute and No-till on the Plains, major fashion and food brands, and farmland investment firms embracing sustainability could readily be considered members of this branch of regenerative agriculture.

To these five lineages, we would add several other important clusters of influences on regenerative agriculture that have also strongly shaped our own thinking about the space:

AGROECOLOGY

Diverse indigenous agrarian traditions often described today as Agroecology that are rooted in low-impact, smallholder peasant farming techniques that work closely and holistically with natural systems that build upon ancestral knowledge appropriate to place. These traditions have inspired

a wide array of systems and innovations, such as biochar management for carbon sequestration based on the Amazonian “dark earths” (*terra preta*), complementary companion planting rooted in Native American growing practices, commons-based seed saving and sharing that promote biological diversity, low-till “systems of crop intensification” and precision cultivation, and perennial pastoralism, foraging, and forestry. Even the Food and Agriculture Organization (FAO) has embraced agroecology as a framework.

“NATURE AS MEASURE” FARMSTEADING

A resilient, communitarian, place-based strain of diversified North American farmsteading traditions that use “nature as measure” and emphasize appropriate agricultural technology and small-scale family farming rooted in rural place, associated with Wendell Berry and the Berry Center in Kentucky, educational settings such as Sterling College in Vermont, the Organic Growers School and Warren Wilson College in Appalachian North Carolina, Joel Salatin and Polyface Farm in Virginia, and Wes Jackson and the Land Institute in Kansas, which focuses on the development of perennial grains on prairies.

“BIOLOGICAL” FARMING

A diverse “biological” cluster of European alternative farming traditions, such as Rudolf Steiner’s biodynamic farming and French bio-intensive farming that strongly influenced the formation of the University of California Santa Cruz’s pioneering Center for Agroecology and Sustainable Food Systems, associated with the English market gardener Alan Chadwick, as well as small-scale, four-season, no-dig organic market gardening pioneers such as Elliot Coleman in Maine, Jean-Martin Fortier in Quebec, and Charles Dowding in Great Britain.

* Ethan R. Soloviev and Gregory Landua, “[Levels of Regenerative Agriculture](#),” Terra Genesis International, September 2016; and Soloviev, “[Lineages of Regenerative Agriculture](#),” December 2018. Soloviev and Landua identify four levels of regenerative agriculture, organized as successive stages in a progressive framework of principles and practices: 1) a “functional” level focused on best practices that regenerate soil health and sequester carbon; 2) an “integrative” level focused on more holistically designing farms to improve the health and vitality of the wider ecosystem, not just soil; 3) a “systemic” level that views the farm within wider ecosystems of enterprises building multiple forms of capital; and 4) an “evolutionary” level involving “pattern understanding of the place and context” within which agriculture takes place.

** Regenerative Agriculture Initiative, CSU Chico, and the Carbon Underground, “[What Is Regenerative Agriculture?](#)” February 2017.

considerations related to supporting sustainable livelihoods for farmers, fair working conditions on the farm, and the resilience and revitalization of the rural communities and landscapes in which regenerative farming functions—as well as the wider local and regional food systems to which farms are intimately connected. Regenerative agricultural operations often support other enterprises that “close the loop,” transforming what might otherwise be seen as waste or sources of pollution into soil amendments and inputs or added-value products. Healthier soils provide the foundation for healthier ecosystems, healthier food, healthier communities, and more resilient regional economies. In this sense, “regenerative agriculture” is not meant to provide a singular blueprint for farming operations, in the manner of the Green Revolution or

vertically integrated contract farming systems. Rather, “regenerative agriculture” is a set of principles rooted in biology, ecology, and agrarian stewardship, and a diverse array of agronomic practices that can be adapted in pluralistic ways to local contexts.

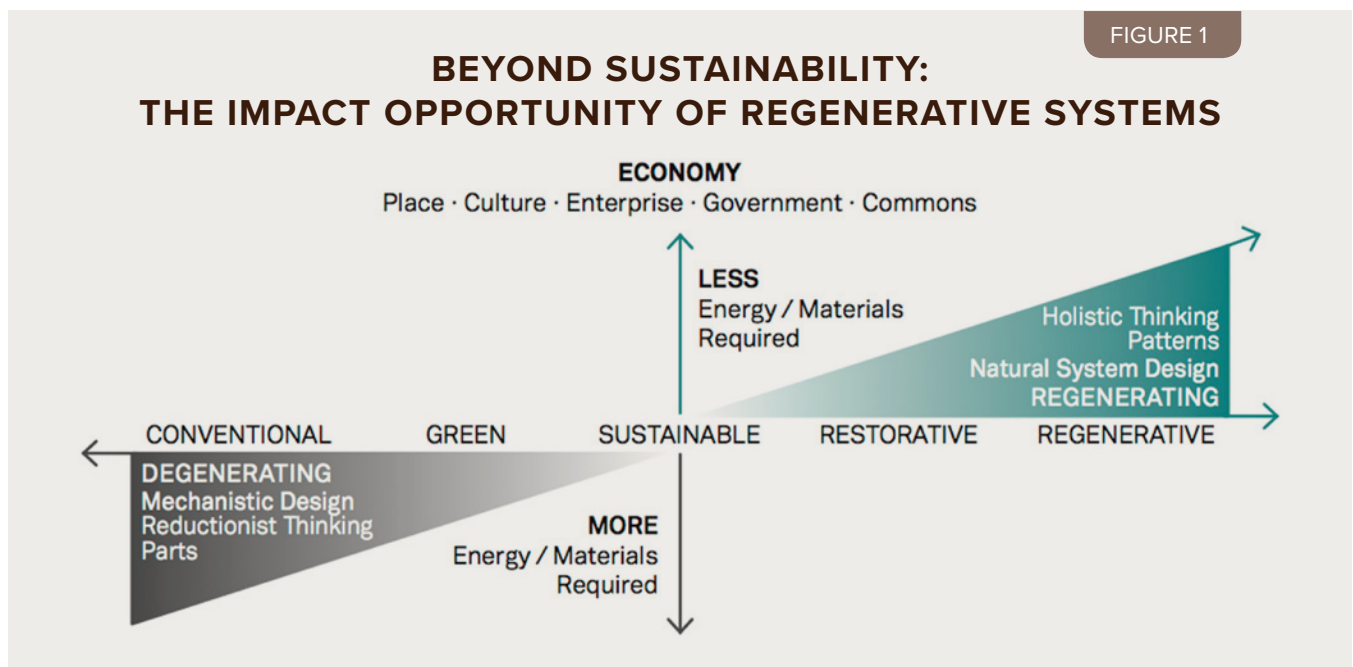
The increasing urgency of addressing climate change has added to the growing interest in regenerative agriculture and “carbon farming.”⁴ In October 2018, the latest report of the U.N. Intergovernmental Panel on Climate Change (IPCC) set a new global warming threshold of 1.5 degrees Celsius (2.7 degrees Fahrenheit) temperature increase above the pre-industrial era, needed to avoid the most devastating impacts of climate change and prevent hitting dangerous tipping points that could negatively transform both ecosystems and civilization as a whole.

4 Eric Toensmeier, *The Carbon Farming Solution: A Global Toolkit of Perennial Crops and Regenerative Agriculture Practices for Climate Change Mitigation and Food Security* (White River Junction, Vt.: Chelsea Green, 2016).

In order to limit global warming to 1.5 degrees C with limited or no overshoot, all of the IPCC’s scenarios require removing 100-1,000 gigatons of carbon-dioxide equivalent (CO_{2e}) from the atmosphere. Conventional industrial agricultural systems’ use of concentrated animal feeding operations in livestock production, over-reliance on fossil-fuel and chemically-derived synthetic inputs, and emphasis on intensive mechanical tillage have degraded soil health and magnified agriculture’s contributions to atmospheric carbon emissions.

The IPCC has highlighted how carbon dioxide removal measures such as land restoration and soil carbon sequestration have the greatest potential to avoid climatic tipping points, alongside afforestation, reforestation, and carbon capture and storage technologies.⁵ While the agricultural sector alone currently accounts for nine percent of total U.S. greenhouse gas emissions,⁶ regenerative agriculture and other farming practices that proactively build soil health and sequester carbon have the potential to reduce more carbon dioxide from the atmosphere than in any other sectors.⁷ According to Project Drawdown, food and agriculture solutions, including regenerative agriculture practices, can provide approximately 30 percent of total global climate mitigation, through both emissions reduction

Climate-friendly agricultural practices could mitigate nearly 170 GtCO_{2e}, while generating a nearly \$10 trillion net financial return.



Source: John Fullerton, “Regenerative Capitalism: How Universal Principles and Patterns Will Shape Our New Economy,” Capital Institute, April 2015.

5 Valérie Masson-Delmotte, et al., eds, “Global Warming of 1.5°C: Summary for Policymakers,” Intergovernmental Panel on Climate Change, October 2018.

6 When considering the industrial and transportation emissions associated with food production and distribution, the food sector accounts for much more than 9 percent of total emissions. See U.S. EPA, “Sources of Greenhouse Gas Emissions.”

7 However, a distinction should be clearly drawn between Regenerative Agriculture and a parallel recent development known as “Climate-Smart Agriculture” that tends to focus on a set of “best management practices” that can be readily integrated into mono-cultural industrial agricultural systems. See Anne-Marie Codur and Josephine Watson, “Climate-Smart Agriculture or Regenerative Agriculture? Defining Climate Policies Based on Soil Health,” Climate Policy Brief no. 9, Global Development and Environment Institute, Tufts University, April 2018.

SELECTION OF PUBLIC AND PRIVATE BENEFITS DELIVERED BY INVESTING IN REGENERATIVE AGRICULTURE



nutrient cycling



carbon storage



*aeration &
root growth*



*sustainable
livelihoods*



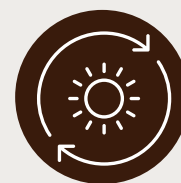
*reduce runoff
& erosion*



*improve yield
stability*



water quality/quantity



*climate change
resilience*



resilient food systems



*public health
& nutrition*



animal welfare



reduce disease & pests

Source: Adapted from NRCS Soil Health Fact Sheet, "[Principles for High Functioning Soils](#)," USDA, January 2017.

and carbon sequestration—far more than sectors such as electricity, transport, materials, and the built urban environment.⁸ To realize this potential, implementation of regenerative agricultural practices would require more than \$700 billion in estimated net capital expenditure over the next 30 years. Based on our analysis of Project Drawdown's published data, projected out to 2050, climate-friendly agricultural practices could mitigate nearly 170 GtCO₂e, while generating a nearly \$10 trillion net financial return.

Climate mitigation, adaptation, and resilience are only some of the benefits associated with investing in regenerative agriculture. The outcomes from regenerative agriculture can also enhance biodiversity, improve the water cycle, and strengthen broader ecosystem resilience, and in food insecure regions, they

can also strengthen food systems and public health (See Figure 2). After all, "Climate Action" is merely one of numerous U.N. Sustainable Development Goals (SDGs) that growing numbers of investors associated with groups such as the Global Impact Investing Network and the PRI are beginning to integrate into their investment decision-making frameworks. Of the 17 SDGs that have been developed as part of the 2030 Agenda for Sustainable Development, regenerative agriculture touches upon SDGs 2 (Zero Hunger), which also includes promoting sustainable agriculture, 3 (Health and Well-Being), and 15 (Life on Land, which includes reversing land degradation), in addition to 13 (Climate Action).⁹

The precision with which investors can allocate capital to regenerative agriculture through their

⁸ Project Drawdown, "[Climate Solutions: Regenerative Agriculture](#)."

⁹ Aliana Pineiro, Hannah Dithrich, and Arti Dhar, "[Financing the Sustainable Development Goals: Impact Investing in Action](#)," Global Impact Investing Network, September 2018; and Principles for Responsible Investment, "[The SDG Investment Case](#)," October 2017.

portfolios is neither simple nor self-evident. Many regenerative agriculture operations and enterprises have not been financed through traditional channels of institutional investment, but rather with a wide array of entrepreneurial financing models.¹⁰ The investment universe is opaque, and the product set remains relatively limited. Despite more than \$1 trillion in assets under management (AUM) reportedly subject to investment criteria associated with sustainable natural resources, regenerative agricultural investment is only a small, though growing, component of that larger galaxy. In order to give greater visibility to this smaller constellation of investments, we have scanned the US landscape for investment funds that explicitly make sustainable food and agriculture or regenerative agriculture part of their investment strategy or criteria.

This report summarizes those findings and provides a roadmap to guide the development of future regenerative agriculture investment opportunities. Our analysis casts a wide net across all investment asset classes, identifying investable strategies in both conventional asset classes such as cash, fixed income, and listed equities, and alternative asset classes such as private equity, private debt, and real assets. The focus of this study is primarily on funds that commingle investor assets in professionally managed ways, not one-off direct investments into

individual businesses, farms, or deals, although we recognize that many investments in the regenerative agriculture space have often been precisely along those lines. However, we believe that in order for substantive capital to be steered toward regenerative agriculture, investors need to have professionally managed investable options across a wide array of asset classes. Therefore, we have identified ways to invest in regenerative agriculture not only through private investments in farm businesses and farmland, but also across the value chains within which those farms are embedded, from small food- and agri-businesses to larger private brands and even to publicly traded multinational corporations that are increasingly looking to source from regenerative agricultural producers.

Our approach to analyzing value-chain investment across asset classes is rooted in multiple frameworks and methodologies for analyzing capital allocation and deployment, at various scales of analysis. Total Portfolio Activation provides one key framework for integrating social and environmental impact into diversified portfolio construction that we have used previously to analyze impact investing in sustainable food and agriculture in multiple asset classes.¹¹ Total Portfolio Activation acknowledges that impact investment opportunities differ widely among asset classes (see Figure



Source: Adapted from [United Nations Sustainable Development Goals](#).

¹⁰ See, for example, Ethan Soloviev, “[Financing Regenerative Agriculture](#),” Re-Source, April 15, 2018, which identifies five paths for financing regenerative agriculture, including crowdfunding, engagement with suppliers, cashflow-based internal financing, and filling local gaps, in addition to taking outside loans and investment capital.

¹¹ Joshua Humphreys, Ann Solomon, and Christi Electric. “[Total Portfolio Activation: A Framework for Creating Social and Environmental Impact across Asset Classes](#).” Tellus Institute, Tides, and Trillium Asset Management, August 2012. See also

Kristin Lang, Joshua Humphreys, and Andreea Rodinciuc, “[Impact Investing in Sustainable Food and Agriculture across Asset Classes: Financing Resilient Value Chains through Total Portfolio Activation](#),” Croatan Institute, May 2017.

4 for an overview of asset classes). However, this diversity also provides entry points and opportunities for a wide range of investors with varying objectives, fiduciary frameworks, and risk appetites to participate in what remains a relatively new and rapidly evolving arena.

Because food and farming systems are intrinsically rooted in places and landscapes, understanding the value chains within which farming occurs has also been a critical component of our analysis and conceptualization of the investment opportunities associated with financing regenerative agriculture. Alternative approaches to community economic development, such as the WealthWorks model of creating rural wealth, have shaped a variety of food and agriculture initiatives, including the Organic Agriculture Revitalization Strategy (OARS), which

re-envision organic food and agriculture as an economic development strategy for revitalizing rural places in order to build community health and wealth.¹² At the same time, agricultural value chains today are also embedded within the realities and confines of a global political economy that cannot be disregarded. Throughout this report, we bring a sensitivity to scale in our analysis—from the local and regional to the global, from on-farm practice in specific places to the broader value chains and food systems that connect farms to other enterprises, from specific funds to the wider asset classes they represent, and from individual deals to the diversified portfolios through which deal flow is often intermediated. Figure 5 represents the flow of capital allocation from the financial value chain of asset owners and institutional investors into the agricultural value chain through the intermediation

OVERVIEW OF ASSET CLASSES

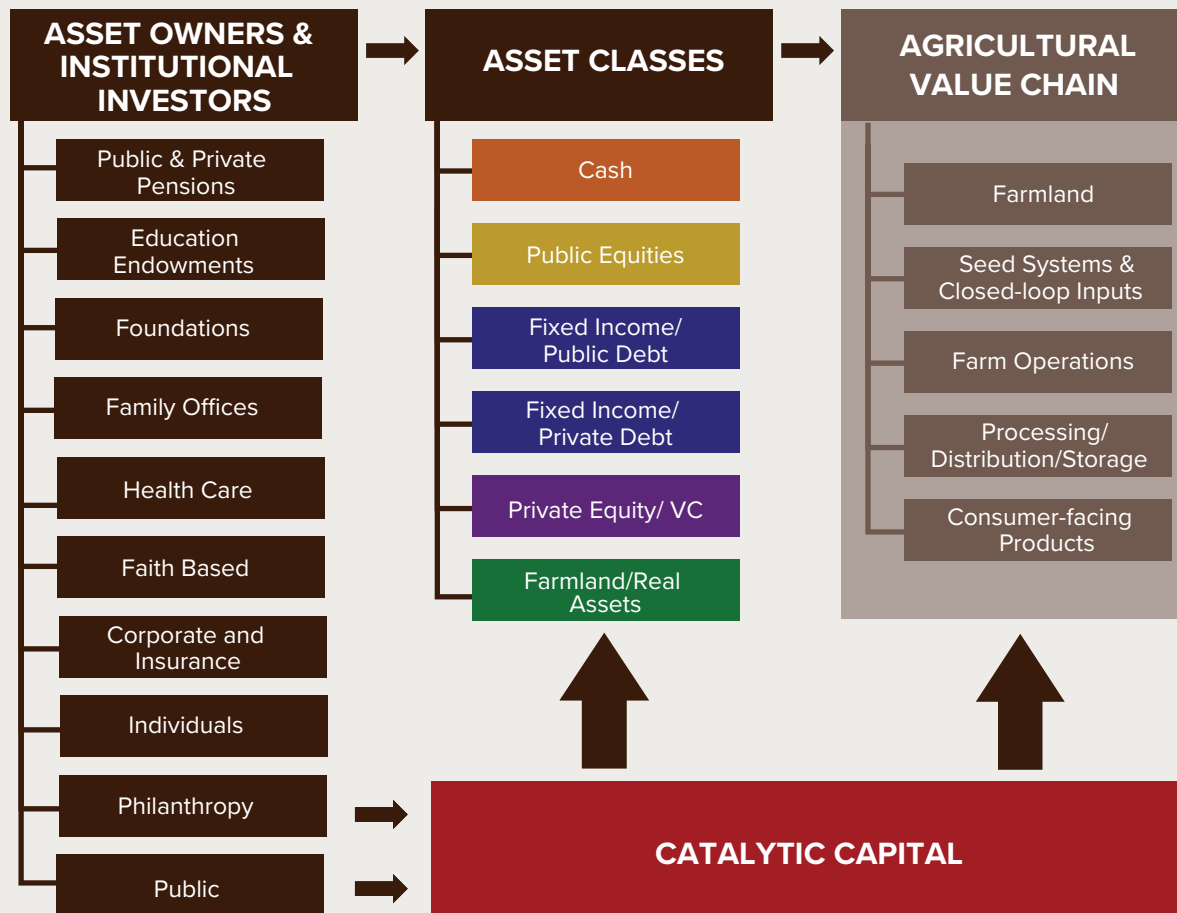
FIGURE 4

<p>Cash and Cash Equivalents</p>	<p>Cash and cash equivalents are generally among the most liquid investments that can be made, often with some of the lowest risk/return profiles, depending on the investment term. Typically, cash investments are in money-market funds or depository products at regulated banks or credit unions, such as interest-bearing checking, savings, and money-market accounts, or certificates of deposit (CDs).</p>
<p>Fixed Income</p>	<p>Investors have opportunities to be lenders themselves by investing in debt instruments that return a yield on a regular, fixed interval. Fixed income investments play an important role in diversified portfolios, and we see opportunities emerging to finance sustainable, regenerative agriculture in both publicly traded debt securities, through bonds and bond funds, and in private markets, primarily through private debt funds or notes.</p>
<p>Public Equity</p>	<p>Investors can purchase shares of the listed equities of publicly traded corporations. Public equity usually constitutes the largest component of an investor’s portfolio. Opportunities for impact are particularly through investment selection and shareholder advocacy.</p>
<p>Private Equity / Venture Capital (VC)</p>	<p>Private equity and venture capital provide opportunities to invest directly into private companies working on business and technology solutions across food and agricultural value chains. Investors can gain exposure to the asset class by either investing directly in companies themselves or investing as a limited partner in a private equity or venture capital fund or a fund of funds.</p>
<p>Farmland / Real Assets</p>	<p>Real assets, such as farmland, constitute the primary asset class through which regenerative food and agriculture is currently being financed, and understandably so since agricultural land management is central to soil health.</p>

¹² See Croatan Institute, “[Organic Agriculture Revitalization Strategy](#)” (accessed January 20, 2019).

FIGURE 5

CAPITAL ALLOCATION FROM THE FINANCIAL VALUE CHAIN TO THE AGRICULTURAL VALUE CHAIN



Source: Croatan Institute.

of specific investment asset classes, with “catalytic” support from philanthropy and government incentives. Given the complexity involved in transforming food systems, expanding value chains along more sustainable lines, and shifting farming toward more regenerative practices, multiple forms of capital will need to be mobilized across these efforts, often in highly integrated ways. Integrated Capital is another useful framework that has shaped our approach to analyzing this emerging landscape of regenerative agricultural investment. According to RSF Social Finance, a pioneering food system investor that has blended philanthropy and investment in creative ways, “Integrated Capital is the coordinated use of diverse forms of financial and human capital to support enterprises and strategies that address complex social and environmental problems.”¹³ Whereas Total Portfolio Activation provides a framework for

constructing diversified impact investment portfolios across asset classes, Integrated Capital helps investors develop creative capital stacks to accomplish specific investment deals, often blending layers of investment with various risk and return profiles alongside philanthropic support and technical assistance. While some investments in regenerative agriculture may target and generate market-rate returns, it is critical to note that neither the market nor modern portfolio theory, which undergirds most conventional agricultural investments, has fully priced the risks and opportunities associated with climate change, soil and human health, and regenerative farming practices. Investing in regenerative agriculture therefore often requires creative collaboration and coordination around capital deployment.

¹³ See RSF Social Finance, “[Integrated Capital Institute](#)” (accessed January 18, 2019).



Open pollinated heirloom corn. Courtesy of Meadowlark Organics.

THE LANDSCAPE OF REGENERATIVE AGRICULTURAL INVESTMENT

Our analysis of the landscape of regenerative agricultural investment includes the identification of both currently available investment strategies and leading financial instruments, mechanisms, and approaches that often facilitate deal flow within food and farming systems. Integrated Capital is itself such a mechanism for financing food system transformation, and organizations such as RSF Social Finance have formed creative investment collaboratives around precisely these themes. We have identified a wide range of financial mechanisms commonly used in more traditional conservation or agricultural finance transactions that could potentially be mobilized explicitly to support regenerative agriculture outcomes in the future. In that sense, this report aims not only to document the existing landscape of professionally managed investment opportunities but also to identify opportunities for developing new investment strategies and new mechanisms for financing regenerative agriculture at various scales. Philanthropy and government funding, in particular, have critical, potentially catalytic roles to play in creating an environment for more private capital to be mobilized in support of regenerative agriculture that truly delivers on its environmental and social impact potential.

Given limited transparency, we have tried to measure the size of this rapidly changing marketplace of investment strategies that are beginning to integrate regenerative agriculture considerations into their investment process in some way. To the extent possible, we distinguish those emerging regenerative opportunities from a much broader constellation of investment funds that incorporate “sustainable” food and agriculture themes into their strategies.¹⁴ This side-by-side comparison allows one to understand the relative size of the market for funds with regenerative agriculture criteria in relationship to this wider universe of which they constitute a growing subset. Our scan of the current landscape of sustainable food and agriculture investment has identified 127 investable strategies, with combined assets under management of \$321.1 billion. These are US-focused funds that explicitly integrate sustainable food and agriculture thematically or as criteria in their investment process; they do so in a variety of different ways across a wide array of asset classes.¹⁵ As shown in Figure 6, just under half of these investment strategies give an investor full exposure to sustainable food and agriculture themes; most give only limited exposure to food and agriculture as part of broader, more diversified ESG or impact investment themes

¹⁴ Lang, et al., “Impact Investing in Sustainable Food and Agriculture,” 2017.

¹⁵ Only 93 funds have assets associated with them, so this can be considered a conservative undercount of assets under management. Some funds may have ceased operations.

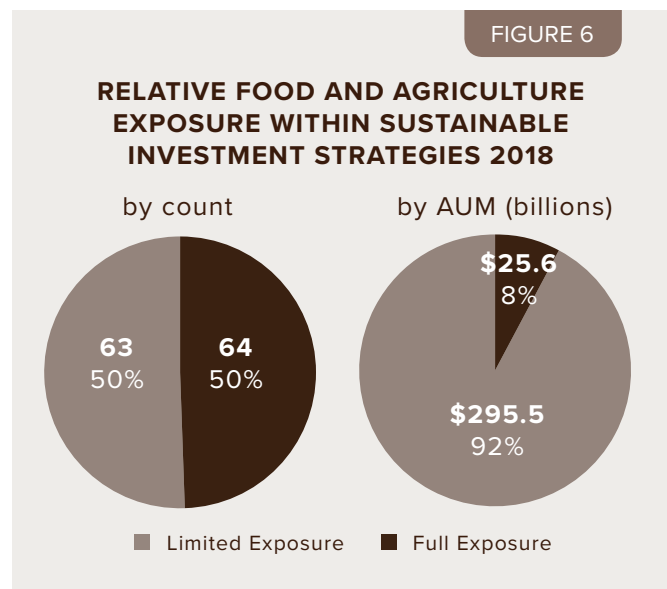
or criteria. Furthermore, in asset-weighted terms, the strategies that give an investor full exposure to sustainable food and agriculture are much smaller on average than more diversified strategies providing only limited exposure. Only eight percent of the combined AUM of these strategies—\$25.6 billion—are managed in funds giving full exposure to sustainable food and agriculture; the vast majority of the AUM managed through these vehicles are held in funds pursuing more diversified thematic strategies of which sustainable food and agriculture is merely one.

Of this wider universe of sustainable investment opportunities, only 70 strategies included one or more criteria related to some facet of regenerative agriculture, as seen in Figure 7. Asset information could be identified for only 54 of these funds with combined assets of \$47.5 billion, making this a conservative baseline estimate of the size of this rapidly emerging market. To qualify for inclusion in this “regenerative” subset of the broader constellation of sustainable food and agriculture investment strategies, managers needed to confirm some explicit incorporation of one or more regenerative agricultural practices into their investment strategy, either through interviews or in their offering or marketing materials. As we have already noted, a wide range of definitions for regenerative agriculture is used by practitioners in the field, so we aimed to reflect the diversity of them at this early stage of analysis (See Box 1). Among the many criteria, we looked for the following regenerative-oriented areas of reference, with a particular emphasis on soil health and diversified, regenerative land management practices, as well as considerations related to animal welfare and sustainable livelihoods often found in most holistic approaches to regenerative agriculture:

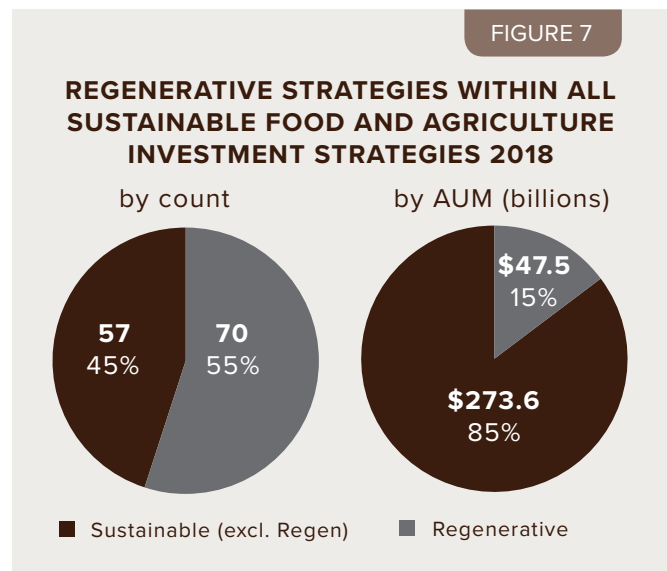
SOIL HEALTH AND LAND MANAGEMENT

- Soil health and regenerative crop management practices, including cover crops, diversified crop rotations, rotational grazing, no-till or low-till practices, and building soil organic matter
- Use of compost, manure, and natural fertilizers and amendments, rather than synthetic inputs of substances prohibited in organic approaches
- Promotion of biological diversity across the farm and in the soil
- Farm facilities and infrastructure that support ecosystem services, related to energy, water and irrigation, and wastewater management
- Operation management, including meeting certification standards (e.g., USDA Organic,

(continued on next page)



Source: Croatan Institute.



Source: Croatan Institute.

Regenerative Organic Certification, Ecological Outcome Verified, Non-GMO Project Verified, Demeter, Grassfed, among others), adopting appropriate technology and tools for regenerative practices, water resource conservation and stewardship, avoiding land-use transformations involving, for example, deforestation or other natural resource extraction or depletion

- Operation measurement for regenerative outcomes, including soil and plant testing, carbon or ecosystem service modeling, bionutrient density analysis, and other regenerative farm monitoring
- Other practices related to regenerative agriculture (e.g., perennial and permanent crops, agroforestry, silvopasture, permaculture, closed-loop systems, carbon sequestration, climate mitigation)

ANIMAL WELFARE

- Outdoor pasture-based or silvopasture-based systems
- Suitable shelters and no concentrated animal feeding operations (CAFOs)
- Minimal transport
- Holistic husbandry and veterinary care

SOCIAL FAIRNESS AND SUSTAINABLE LIVELIHOODS

- Fair farm working conditions
- Support sustainable livelihoods for farmers and their families
- Resilient rural community relations and rural wealth creation
- Reciprocity in local and regional food systems; fair contracts and pricing

Given the diversity of approaches to investing in regenerative agriculture, not all of these criteria are equally present or evenly weighted within investment decision-making processes. For example, if livestock are not integrated into operations, then animal welfare criteria may not be applicable. In other cases, an even deeper emphasis may be placed on social equity, including issues such as access to land and affordable healthy food or the inclusion of historically marginalized groups.

Most sustainable food and agriculture funds we identified are either farmland funds investing directly in real assets or private equity and venture capital funds investing in food enterprises. As seen in Figure 8, nearly two-thirds of the number of funds are split evenly between these two asset classes. In asset-weighted terms, however, farmland funds were more preponderant with \$89.1 billion in combined AUM. With \$74.4 billion in committed capital, 39 private

equity or venture capital funds with sustainable food or agriculture criteria constituted nearly a quarter of the assets of this universe. Additionally, in public markets we identified a preliminary set of 15 listed equity strategies with \$84.1 billion in assets under management that incorporate sustainable food and agriculture criteria among a wider set of ESG criteria and five fixed-income strategies with nearly \$68.7 billion in AUM. Because they are typically more broad-based sustainable investment funds with numerous ESG criteria or impact themes, none of the public equity or bond funds we identified give investors full exposure to sustainable food and agriculture as an isolated theme. (Further analysis of the relative exposure to food and agriculture is developed below.) Although 25 private debt funds were identified, constituting nearly 20 percent of the funds identified, they are smaller in relative asset size to their number, with \$3.6 billion in combined AUM. Cash and cash equivalent products, commonly available through banks and credit unions,

held \$1.2 billion in assets (four percent of this universe in numbers and less than one percent in assets). As we have noted with strategies focused on publicly traded securities, investing in a fund that incorporates investment criteria related to sustainable food and agriculture does not always give investors full exposure to the theme, particularly when it is only one among many other ESG or sustainability factors being considered by a fund manager. Indeed, we found that just over half of the strategies identified gave investors only partial exposure to sustainable food and agriculture, with considerable variations across asset classes. Determining what portion of each portfolio, in asset-weighted terms, actually gives investors exposure to food and agriculture would require a far more detailed analysis of the underlying investment holdings, which was simply beyond the scope of the present report.

Nevertheless, 64 funds with nearly \$26 billion in combined assets were thematically specialized to give investors full exposure to sustainable food and agriculture related investments (see Figure 6). The nature and depth of the sustainability analysis underlying each strategy vary greatly from fund to fund—which leads to a wide range of sustainability outcomes in the resulting portfolio. Few turnkey tools exist to evaluate or rate the social and environmental impact of these kinds of funds, although sustainability ratings are beginning to emerge for mutual funds. Investors will therefore need to review any fund carefully to determine appropriate alignment with their ultimate objectives.

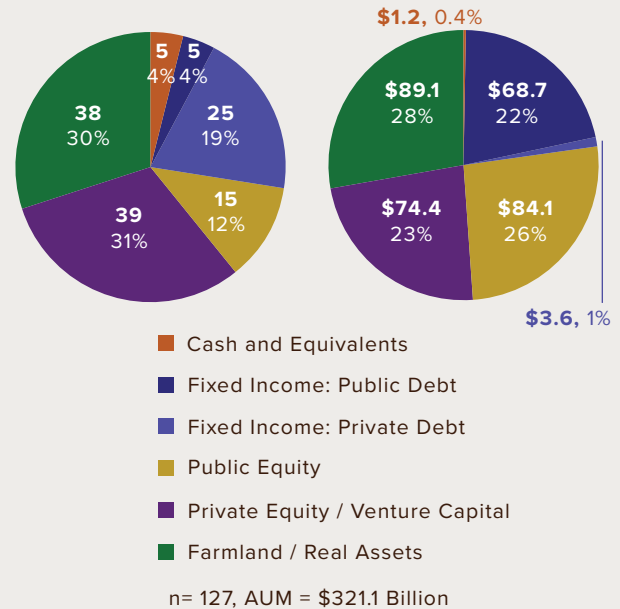
Among the subset of investable strategies explicitly incorporating at least one regenerative agriculture criterion, we see an even stronger weighting of opportunities within real assets and private equity. As shown in Figure 9, nearly half of the combined assets managed by funds with at least one regenerative agricultural criterion are held in farmland funds investing in real assets; combined they manage \$22.8 billion in assets. Fourteen percent of the assets are managed by 12 private equity or venture capital funds with nearly \$7 billion in combined assets. Private debt funds are far more numerous than they are preponderant within this regenerative subset. We identified 17 private debt products with \$2.8 billion in AUM. In the conventional asset classes, we found five cash strategies, three funds in public fixed income, and four funds in public equity, which represented \$1.2 billion, \$5.3 billion, and \$8.4 billion, respectively. While public equity funds represented only 6 percent of those funds identified by count, their assets represented 18 percent of the total assets that incorporate one or

FIGURE 8

ASSET CLASS DISTRIBUTION OF ALL SUSTAINABLE FOOD AND AGRICULTURE INVESTMENT STRATEGIES 2018

by count

by AUM (billions)



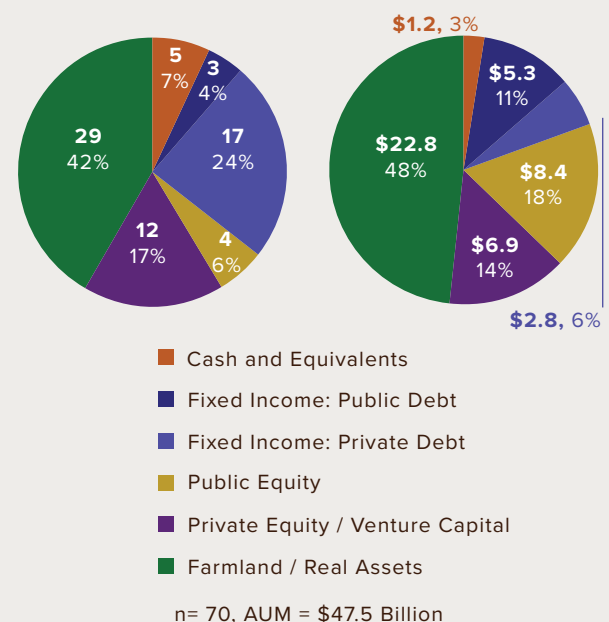
Source: Croatan Institute.

FIGURE 9

ASSET CLASS DISTRIBUTION OF REGENERATIVE FOOD AND AGRICULTURE INVESTMENT STRATEGIES 2018

by count

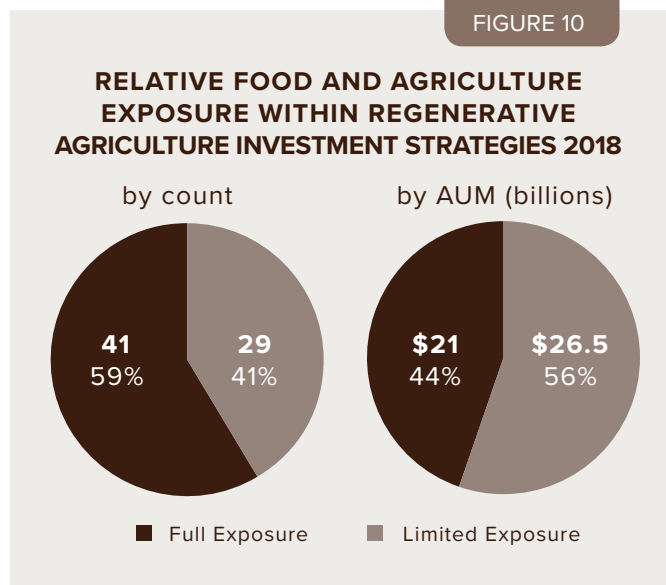
by AUM (billions)



Source: Croatan Institute.

more regenerative agriculture criteria. These data underscore that professionally-managed regenerative agriculture investing remains primarily an alternative asset management strategy in private markets for accredited high-net-worth individuals, families and institutional investors.

Much like the broader sustainable food and agriculture fund universe, funds that incorporate regenerative agricultural practices into their investment strategy do not always give full exposure to those regenerative elements within their underlying portfolios. Again, it may be only one of a wider set of ESG criteria any specific fund is incorporating into research, analysis, and portfolio construction and management. This is particularly the case in private equity where far more of the assets under management—\$5.1 billion of the approximately \$7.0 billion in committed capital—are managed by larger funds where regenerative agricultural practices are only a narrow part of a much more diversified suite of portfolio companies that may work in other thematic impact sectors unrelated to food and agriculture entirely. However, as seen in Figure 10, 59 percent of funds across all asset classes that we identified with at least one regenerative agriculture criterion are specialized in food and agriculture, and therefore investors are gaining full exposure to



Source: Croatan Institute.

food and agriculture investments throughout those strategies. While not all of those underlying food and agriculture investments may be exclusively focused on “regenerative” practices, and the nature, depth, and kinds of regenerative agriculture practices can vary widely across funds, these investments represent an important baseline level of exposure to these issues.

Organic wheat. Courtesy of Pipeline Foods.



Patterns emerged when we analyzed the various ways in which regenerative agriculture criteria were referenced by fund managers (see Figure 11). In asset-weighted terms, the leading references to regenerative agriculture were considerations of soil and crop management, affecting over \$29 billion in combined assets. Farmland funds were the largest contributors, followed by private equity. Operation management concerns were also significantly integrated into the investment process at funds with over \$24 billion in combined AUM. For this set of criteria, we saw a more diversified representation across asset classes, including investment strategies focused on public markets. The third most frequently cited criteria were related to sustainable livelihoods, affecting the portfolios of funds with combined assets of over \$20 billion. Public market funds contributed even more substantially to this criterion, highlighting the importance of social factors within what remain largely ESG impact strategies.

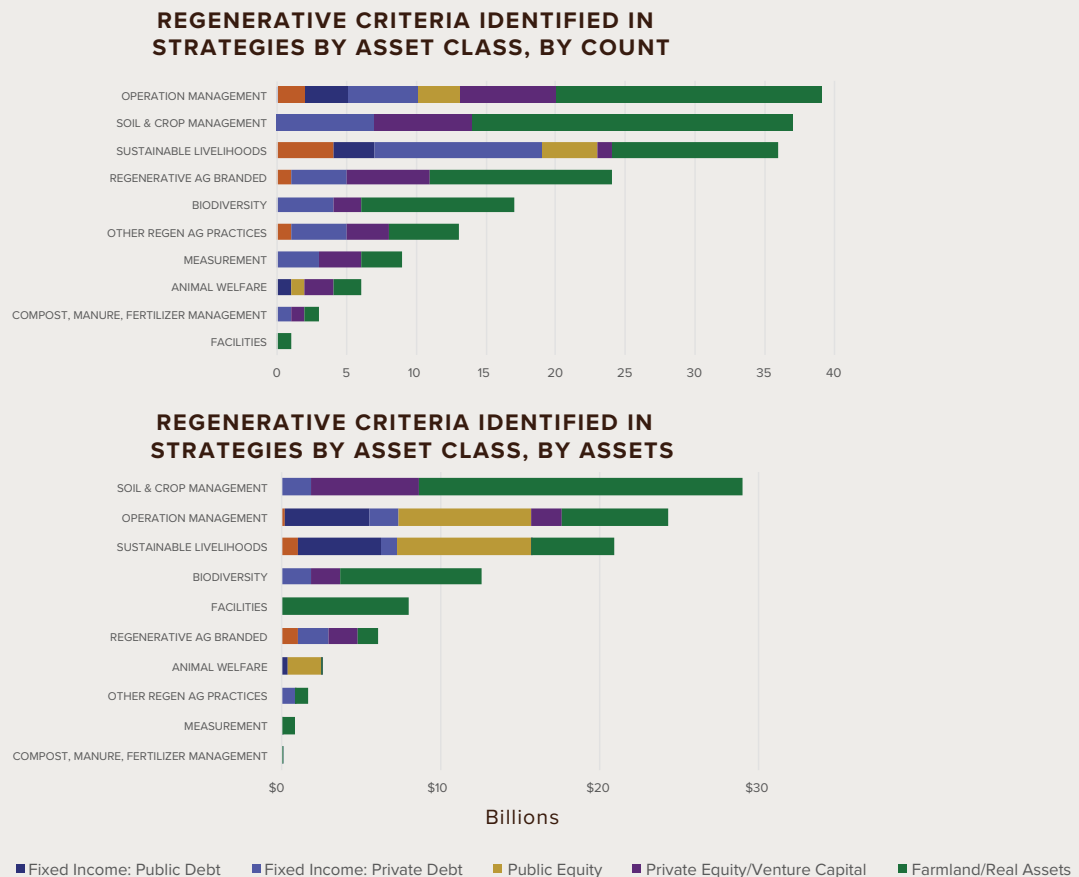
The next tier of leading criteria within the top 10 clustered between \$5 billion and \$13 billion in combined AUM: facilities, biodiversity, and explicit regenerative “branding.” Alternative asset classes dominated this tier of regenerative agriculture issues, with real assets, private equity, and private debt funds contributing most to these criteria. Rounding out the top 10 leading criteria were other regenerative agriculture practices, outcome measurement, animal welfare, and biological soil-building amendments. Each set of criteria in this lowest tier affected the investment strategy at funds with combined assets of \$1 billion and less.

Among those funds that did have explicit considerations for regenerative agriculture, a majority—55 funds with nearly than \$37 billion in combined AUM—made reference to at least two sets of regenerative criteria. However, a much smaller number of funds incorporated three or more regenerative criteria: 39 strategies with \$24.3 billion in AUM.

FIGURE 11

LEADING REGENERATIVE AGRICULTURE CRITERIA IDENTIFIED IN INVESTMENT STRATEGIES 2018

Note: This study identified 70 investable regenerative food and agriculture strategies with \$47.5 billion in assets under management



Source: Croatan Institute.

OPPORTUNITIES FOR FINANCING REGENERATIVE AGRICULTURE WITHIN ASSET CLASSES

As we have already seen, a wide range of investment strategies are beginning to incorporate various regenerative agriculture investing criteria. However, the nature of an investor’s exposure to food and agriculture—its risk and return, its social and environmental impact, its potential to support certain links in the value chain, or its geographic targeting—often depends on the asset class to which capital is allocated. Total Portfolio Activation highlights that asset classes often have specific and indeed intrinsic social and environmental functions that traditional finance theory typically disregards. In this sense, one should take care not to view food and agriculture as an “asset class,” as it is sometimes referred to in industry literature.¹⁶ Instead, it is more appropriate to categorize food and agriculture as a sectoral theme that can be pursued across a range of asset classes.

Our interest here in this section of the study is in isolating various ways in which investors can deepen their exposure to regenerative attributes of the food and agriculture sectors, while also identifying gaps that enterprising intermediaries might step up to fill. Investors consequently need to be closely attuned to the opportunities that specific asset classes afford them, on one hand, while also constraining their opportunities, on the other. In particular when it comes to financing regenerative agriculture, asset classes can limit one’s impact horizon. After all, making equity investments in food and agriculture businesses that may be sourcing

from or supplying to farms that are embracing regenerative agriculture practices is rather different from investing in the farms themselves. Investing in a diversified portfolio of publicly traded securities with only diffuse exposure to these kinds of food businesses has a much different risk, return, and impact profile than that of a specialized strategy investing exclusively in the process of converting farmland into certified organic operations with regenerative attributes. How investment risks and returns are benchmarked also differs widely across asset classes.

In order to advance the potential that regenerative agriculture presents today, capital needs to be deployed both on farms and across the value chain. Understanding how investors can allocate investments across asset classes is paramount to these efforts. We now turn to opportunities we have begun to identify within each of the specific asset classes under examination, highlighting both currently available investment strategies, dynamics and trends within them, and mechanisms germane to various asset classes that could be built upon or developed in alignment with financing regenerative agriculture value chains.

For each asset class, we provide a table that identifies a wide range of mechanisms, instruments and approaches that can be mobilized for financing regenerative agriculture. We pair examples of these tools, some of which have not previously been used in this

¹⁶ Roberto Vitón, ed., “[2018 Global Food and Agriculture Investment Outlook: Investing Profitably whilst Fostering a Better Agriculture](#),” Valoral Advisors, January 9, 2018.

field, with a conceptualization of how the approach might specifically be used to advance regenerative agriculture. Based on our review of the field, we also assess where each mechanism, instrument, or approach falls on a spectrum of maturation: whether it is a future, emerging, rapidly growing, readily scalable, or more established tool for investing in regenerative agricultural value chains, as seen in the Key, “Is this Approach Regenerative Ready?” The Key symbolizes each stage of a tool’s readiness for regenerative

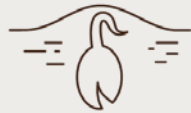
applications, variously, as a seed, a sprout, a seedling, a sapling, and an established plant. Of the 67 mechanisms, instruments, and approaches we inventory, 43 percent are classified at a seed stage for future development, 31 percent are emerging, 19 percent are growing rapidly, and only four percent appear ready to scale. Only one seems firmly established to support regenerative practices, namely, state and federal income tax credits for conservation easements.

KEY: IS THIS APPROACH REGENERATIVE READY?



FUTURE

An idea that has not yet been applied to regenerative agriculture financing.



EMERGING

An approach that has just begun to appear in the sustainable or regenerative agricultural value chain.



GROWING RAPIDLY

An approach that regenerative agriculture investors are beginning to use more frequently.



READY TO SCALE

An approach that would benefit from formalization to bring it to scale in multiple markets.

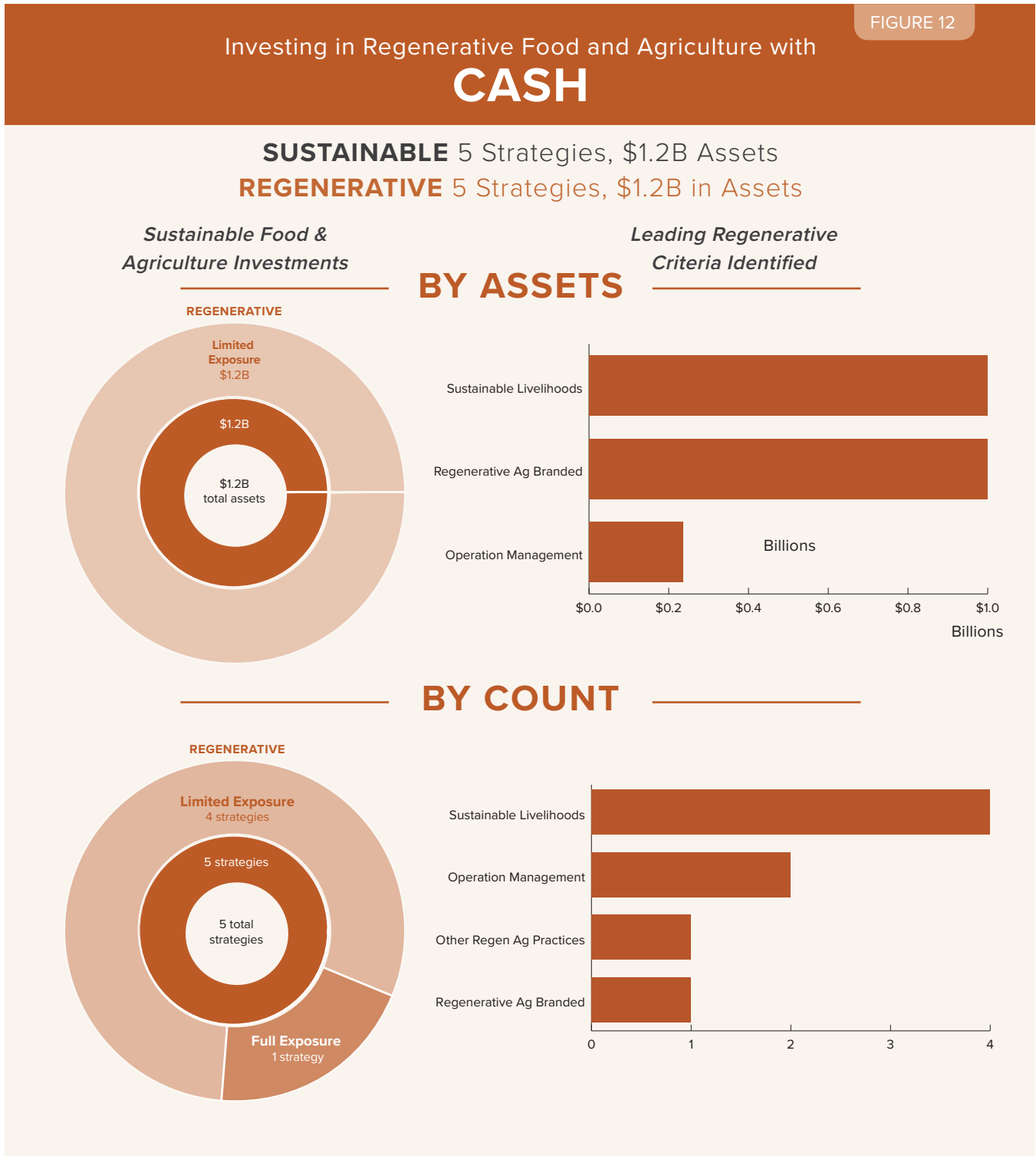


ESTABLISHED

A tried-and-true approach for financing regenerative agriculture and the associated value chain.

CASH AND EQUIVALENTS

Cash and cash equivalents are generally among the most liquid investments that can be made, often with some of the lowest risk/return profiles, depending on the investment term. Typically, cash investments are in money-market funds or depository products at regulated banks or credit unions, such as interest-bearing checking, savings, and money-market accounts, or certificates of deposit (CDs). Given the diverse array of mission-oriented and sustainability banks and community development financial institutions (CDFIs), both banks and credit unions, it should come as little surprise that cash, as an asset class, has long been recognized as a vehicle for



Source: Croatan Institute.

mission-related investment.¹⁷ Deposits made at regulated depository institutions are generally insured federally up to \$250,000 by the Federal Deposit Insurance Corporation (FDIC) for banks and by the National Credit Union Association (NCUA) for credit unions, and for institutional investors depositing larger amounts of cash at banks, CDs can be insured up to \$50 million through the CD Account Registry Service (CDARS).

However, very few opportunities currently exist for investors to direct cash allocations into sustainable food and agriculture products, let alone those explicitly targeting regenerative attributes. For many years, New Resource Bank provided an “Impact CD” that included organic food businesses among its target business borrowers, primarily in the Bay Area of northern California, its primary service area. However, with the bank’s recent acquisition by Amalgamated Bank, the Impact CD no longer appears to be available to depositors although the portfolio of underlying loans remains an active line of business. As the dust continues to settle, not only with the integration of the two banks but also Amalgamated’s decision to go public in 2018, investors should closely watch as Amalgamated

updates its product line and its strategies related to food and agriculture. Amalgamated is a certified Benefit Corporation (B Corp.), a Divest Invest signatory, and a member of the Global Alliance for Banking on Values (GABV), so it has a documented track record of integrating social and environmental concerns into the fabric of its operations. As part of its sustainability programs and climate risk policies, Amalgamated recently announced a substantial commitment to measure and reduce the climate impact of its lending portfolio, in line with the Paris Climate Accord.¹⁸

The newly created Platform for Carbon Accounting Financials is creating a framework for other banks and credit unions, including many other members of the GABV, to track the financed carbon emissions of their loan portfolios. It will be important for investors to engage with Amalgamated to ensure that the early work in food and agriculture associated with New Resource Bank remains explicit within the combined bank and that regenerative agriculture is integrated into the model of financed emissions that the Platform for Carbon Accounting Financials is developing, when most of the focus tends to be on renewable energy projects.

Beans and other legumes help build soil health and play an important role in crop rotations. Courtesy of Meadowlark Organics.



17 Valerie Berezin, Lisa Hagerman, and David Wood, “[Cash as a Mission-Related Investment](#),” Initiative for Responsible Investment, Harvard University, February 2011; and Joshua Humphreys, Ann Solomon, and Christi Electris, “[Total Portfolio Activation: A Framework for Creating Social and Environmental Impact across Asset Classes](#),” Tides and Trillium Asset Management, August 2012, pp. 5-6.

18 “[Amalgamated Bank Launches Initiative to Measure and Reduce Climate Impact of Loan Portfolio](#),” Press Release, October 24, 2018.

Beneficial State Bank is one of the few banks to make lending into the regenerative agriculture value chain an explicit priority. Beneficial State is a GABV member, certified B Corp, and CDFI-certified bank with operations along the West Coast. Rather than making direct farm loans, Beneficial State focuses on business lending. As a Small Business Administration (SBA) approved lender, it also has greater flexibility to offer small businesses loans with longer terms and lower interest rates. The SBA guarantees that a portion of any loan made by an approved lender can be purchased by the SBA in the event of default—a valuable credit enhancement for food and agriculture value chain businesses, even if not explicitly designed for them.

As Beneficial State’s CEO Kat Taylor has noted, “As a bank, we’ve been able to participate in the sustainable food supply chain in the middle—in aggregation and distribution, for example. [But] it has been hard for us to do crop or land lending, and we hit concentration limits pretty quickly in retail, although we are present there.”¹⁹ However, for a cash depositor into the bank, there is no targeted product to finance those kinds of businesses directly or exclusively. A cash investment in one of Beneficial State Bank’s various “PositiveChange” savings or CD products therefore gives an investor exposure to the bank’s broader lending portfolio, which has a wide array of social and environmental impact themes in California, Oregon, and Washington. In its most recent impact report for 2017, for example, Beneficial State identified \$23 million in “mission loans” committed to “healthy food” businesses, out of a \$551 million loan portfolio. It is unclear what portion of those could be considered supportive of regenerative agriculture value chains, but investors could engage with the bank in order to explore the prospect of formalizing its work in this sector.

For the last decade, “Healthy Food” has been a targeted financing area for many CDFIs. Over the last decade, the Healthy Food Financing Initiative has awarded more than \$220 million in federal grants to CDFIs and other community development corporations as part of a public-private partnership among USDA Rural Development, the Department of Health and Human Services, and the US Treasury Department. This funding is targeted for projects that aim to increase access to fresh, nutritious food in low-income rural and urban communities, and it often helps to leverage five times as much additional capital, much of it from

private investors such as foundations, hospitals, and faith-based institutions. In recent years, however, very few CDFI banks or credit unions have been awarded financial assistance through the program, and those that did were not explicitly targeting regenerative agriculture lending. (Most award recipients were community development loan funds, so there could be a parallel opportunity to engage with CDFI loan funds in the private debt asset class about their appetite for establishing dedicated lending facilities to support regenerative food and agriculture value chains.)

In order to engage with these government-supported financing initiatives focused on healthy foods and community development, one would need to articulate stronger linkages between regenerative agriculture and healthy food, on one hand, and between soil health and community wealth, on the other. Place-based approaches to investing in value chains around regenerative farming systems would provide a useful framework for such an exploration. From a social equity perspective focused on sustainable livelihoods, place-based approaches could also help serve as a vehicle for dialogue among various stakeholders, such as regenerative agriculture practitioners, food entrepreneurs, and low-income communities facing serious health and economic disparities.

Even without federal assistance from the Healthy Foods Finance Initiative, some CDFIs, often in rural communities, do have a mission and mandate to do targeted agricultural and farm lending. In contrast to Beneficial State, for example, CDFIs such as Southern Bancorp and Hope Credit Union, United Bank in south Alabama and the Florida panhandle, and Legacy Bank & Trust in the Ozark hills of south-central Missouri each have various agricultural and rural development lending programs for farm real estate and equipment loans, working capital lines of credit for farmers, or commercial loans for facilities and agribusinesses. Many of them participate in preferred lending and loan guarantee programs with organizations such as the Farm Service Agency, the USDA, or Farmer Mac. Although they may have financed, say, an organic farm from time to time, rarely do we see any formal criteria related to regenerative, or even sustainable, food and agriculture embedded explicitly into the lending process by these kinds of CDFI banks or credit unions working in rural geographies. Their underwriting process is primarily

19 “Kat Taylor’s Beneficial State Bank Offering Increased Access to Capital & a Triple Bottom Line Community Mission,” The Planning Report, September 2016.

financial, with a community development component to serve financially underserved communities, but in some cases, agricultural sectors are explicitly targeted. For example, Southern Bancorp has specific “poultry loans” as part of its agricultural lending program, but most of this lending is for contract poultry farmers scaling up their operations, presumably using CAFOs that are contrary to regenerative agriculture approaches. Also none of these CDFIs with rural lending programs appears to have developed any targeted thematic depository products dedicated to food and agriculture in the way that, say, Self-Help Credit Union, the nation’s largest CDFI credit union, has developed a Green Term Certificate of Deposit and a Women and Children CD. These products earmark cash deposits for loan pools targeting, respectively, environmental sustainability projects (including sustainable food businesses) or businesses such as childcare centers or woman-owned businesses that help women and children. On the lending side, Self-Help also has a dedicated “sustainable food systems” financing program and an active rural development commercial lending business, which has

made important value-chain business investments to support cooperative grocers and food hubs focused on organic farmers in North Carolina, but the credit union does not make farm loans per se.

For an investor eager to invest cash specifically into regenerative food and agriculture systems, stronger signals and more explicit targeting would be needed from CDFI banks and credit unions so that investors can understand how their cash deposits are providing capital to support loans into this area, rather than just capitalizing the overall balance sheet of the financial institution. In this sense, the time is ripe to deepen collaborative, capacity-building initiatives along the lines of the CDFI Fund’s earlier efforts to educate CDFIs about how to lend to “small and emerging farmers,” but with a specific focus on financing emerging regenerative agriculture value chains, rather than conventional commodity or factory farmers working in low-resource rural communities.²⁰ If CDFIs prove unreceptive to developing such a specialized approach, could a mission-aligned CDFI bank or credit union be developed with deeper roots

Buckwheat summer cover crop at Common Ground Farm in New York. Courtesy of Susan Paykin.



20 See, for example, Gray Harris and Denise Dukette, “[How to Effectively Underwrite Small and Emerging Farms](#),” CDFI Fund and Opportunity Finance Network,” June 2012.

in the concerns and banking needs of the rapidly growing regenerative agriculture community? Or would it go the way of the Permaculture Credit Union in Santa Fe, NM, which had proposed to bring “permanent agriculture” principles to finance but ultimately was forced to close in 2014 after struggling in the aftermath of the financial crisis? If regenerative agriculture, like permaculture, remains a relatively niche community of practitioners and supporters, then isolating it as an investment theme may prove simply unviable on its own, at least as a professionally intermediated cash investment.

Although regenerative agriculture is not its sole or primary focus, the Maine Harvest Credit project, a collaboration of the Maine Farmland Trust and the Maine Organic Farmers and Gardeners Association (MOFGA), has proposed establishing a dedicated CDFI credit union to work exclusively with farmers and food entrepreneurs. Following a successful initial capital raise of \$1.4 million, the credit union is slated to open later this year.²¹ It will be the first credit union of its kind in the nation, and depositors will be getting direct exposure to the food and farming sector, albeit in a very specific New England geography. Although small in scale, the Maine Harvest Credit Union could become an important experiment to watch to determine if it could be replicated in other places. In addition to making cash investments in these kinds of banks and credit unions, any individual or institution could simply shift their entire banking relationship over to them to support their work.

CDFIs are naturally not the only banks and credit unions where investors can park their cash, or where farmers and entrepreneurs can get loan financing. Nor are these the biggest levers to pull when it comes to mobilizing bank capital. Given that bank lending remains one of the most vital forms of financing that farms and small food businesses typically access, we see a major opportunity for regenerative agriculture investors to engage with a wide range of banks and credit unions about developing dedicated depository products that could explicitly be linked to support farms and food entrepreneurs, whether they are CDFIs or not. When analyzed more broadly across the rural and agriculture banking sector, including government-sponsored enterprises such as the Federal Farm Credit System and Farmer Mac, rural agricultural bank and credit union deposits could theoretically be leveraged

into a combined pool of some \$370 billion in assets. (We explore opportunities associated with Farm Credit and Farmer Mac more fully below in the fixed-income discussion.) According to the USDA Economic Research Service, commercial banks held \$162 billion in farm-related debt in fiscal year 2017, a year when the Farm Credit system and the nation’s nearly 2,000 private agriculture banks deployed more than \$100 billion in combined capital specifically for farm operating loans.²²

This is a major pool of untapped capital that is financing agribusiness as usual. Based on data from Project Drawdown, we estimate that for every \$1 billion in operating loans that could be targeted to farms implementing regenerative practices, 25 million tons of additional CO₂e could be sequestered each year. By increasing loan levels further and strategically targeting lenders operating in agricultural regions with higher potential for soil carbon sequestration, the climate mitigation impacts could be even greater. Ultimately, cash depositors in private banks provide an important component of liquidity to make those loans possible. And as we have already repeatedly seen, public funding in the form of loans, guarantees, grants, and financial assistance from the CDFI Fund, the FDIC, the NCUA, the SBA, USDA and Farm Service Agency (FSA), as well as Government-Sponsored Enterprises (GSEs), can supplement deposits to unlock financing for farmers and food entrepreneurs. Whether this potential capital base could be more fully mobilized for regenerative agriculture remains the critical question. Beyond the Maine Harvest Credit Project, New England provides other noteworthy examples of ways to foster collaborations between local depository institutions and stakeholders involved in local food, Slow Money, and sustainable agriculture. The Carrot Project in Massachusetts, for example, has forged relationships with numerous financial intermediaries to develop place-based local food lending initiatives across the region, from New York to Maine. Among them, the Greater Berkshire Agriculture Fund is the only one that is working with a community bank, Salisbury Bank & Trust Company, to finance flexible 5 percent loans up to \$75,000 for farmers and entrepreneurs in a four-county, multi-state geography in the Hudson Valley of New York, northwest Connecticut, and western Massachusetts. The fund explicitly targets “small and midsized farms and food system enterprises using sustainable or organic practices or products.”²³

21 Jim DuPlessis, “[Maine Harvest Credit Union to Open in 2019](#),” Credit Union Times, October 2018.

22 American Farm Bureau Federation analysis of USDA ERS data at <https://www.fb.org/market-intel/who-holds-farm-debt>.

23 See The Carrot Project, “[Hudson Valley, Berkshire County & Western CT](#)”; and Honey Sharp, “[The Carrot Project: Helping Farmers, One Microloan at a Time](#),” The Berkshire Edge, August 28, 2014.

Other Carrot Project collaboratives in Massachusetts, Vermont, and Maine have focused on private debt funds, including community development loan funds, rather than banks as the financial lending intermediary. They have shown that a regulated depository institution like a bank or a credit union could play such a role, opening opportunities for both individual and institutional investors to target their government-guaranteed cash deposits to these kinds of specialized lending initiatives.

One final critically important area in the cash asset class is money-market funds, which most investors tend to use for cash management, transactional sweeps, and holding “dry powder” within their investment portfolios. According to the Investment Company Institute, more than \$3 trillion in combined assets were held in U.S. money market funds at the outset of 2019. Often organized as mutual funds and therefore regulated by the Securities and Exchange Commission, money-market funds invest in highly liquid short-term debt securities, such as U.S. Treasury bonds, bank CDs, and commercial report, but they aim to maintain a \$1 net asset value and provide daily liquidity to investors in the fund. Yields on these investments consequently tend to be low. Unlike deposits at regulated banks or credit unions, however, money-market funds do carry a risk of loss of principal without a government guarantee.

Unfortunately, nearly all money-market funds are currently “plain vanilla,” with little consideration for

ESG criteria, let alone anything remotely addressing regenerative food and agriculture financing. Prior to the financial crisis, several socially responsible investment firms, including Calvert Investments, Domini Impact Investments, and PAX World Management, managed money-market funds with various social criteria, often by partnering with CDFIs, laddering CDs, and investing in short-term fixed-income instruments that met ESG criteria. In a low interest-rate environment, though, these funds proved to be challenging funds to manage because firms could not generate adequate fee income to maintain the standard expectation of a \$1 net asset value.









Even as the ESG and impact investing space has expanded rapidly in recent years, money-market funds remain a major gap in ESG portfolios, although a small handful of firms including BlackRock, DWS, Everence Financial, and GuideStone manage money-market funds or accounts with a variety of SRI or ESG strategies. None of them has any explicit reference to food and agriculture. At this stage of market development, and given the challenges these vehicles have faced in the past, it may be better for such a money-market fund to be a broad-based ESG impact fund that includes partial exposure to short-term instruments that support regenerative agriculture and has a wider appeal to sustainable, responsible, impact investors than one that tries to be thematically pure.

Rainbow over the regenerative farmscape. Courtesy of Pipeline Foods.



FIGURE 13

MECHANISMS, INSTRUMENTS AND APPROACHES IN CASH AND CASH EQUIVALENTS

Mechanism, Instruments or Approach	Example	Opportunities for Supporting Regenerative Agriculture	Regenerative Ready
Certificates of Deposit	Self-Help Credit Union Green Term Certificate of Deposit	Develop a thematic CD that more explicitly targets regenerative agriculture businesses along the value chain.	
Money market funds and accounts	Socially responsible money market funds	Structure a money-market fund that ladders a diverse series of CDs and money-market deposits at a wide variety of mission-aligned banks. It could include partial exposure to short-term instruments that support regenerative agriculture.	
Federal assisted lending through CDFIs	Healthy Foods Finance Initiative federal grants	Engage with government-supported financing initiatives focused on healthy foods and community development, with emphasis on linkages between regenerative agriculture and healthy food and between soil health and community wealth.	
Targeted bank lending	Increased and strategically-targeted bank lending to beginning farmers, as done by Farm Credit East's Farm Start program (see Fixed Income: Private Debt section)	Engage with banks and credit unions about developing dedicated depository products explicitly linked to support farms and food entrepreneurs, whether they are CDFIs or not.	
Interest-bearing checking and savings	Beneficial State Bank lends to regenerative agriculture value chain businesses. CDFIs and credit unions, such as those that support healthy food financing	Banks can target lending to regenerative agriculture-related businesses and farmers. Engage with banks, CDFIs and credit unions to gain more transparency about how cash deposits are capitalizing loans in the food and agriculture system with regenerative features.	
Certificates of Deposit at local depository institutions	The Carrot Project and Salisbury Bank & Trust Company CD that supports local farms	Foster collaborations between local depository institutions and sustainable agriculture stakeholders, encouraging local banks, CDFIs and credit unions to support place-based farms and food system businesses with regenerative agricultural characteristics.	
Specialized credit union	Maine Harvest Credit Project	Design food system-focused CDFIs to work exclusively with farmers and food entrepreneurs and locate in other states and regions that want to scale up the financing options for regenerative agricultural-related farms and businesses along the value chain.	
Voluntary standards or certifications	Global Alliance for Banking on Values, Platform for Carbon Accounting Financials, Benefit Corporation (B Corp), UN Principles for Responsible Investment	Ascribing to certain voluntary affiliations may lead a bank's lending to be more supportive of regenerative agriculture-related businesses.	

FIXED INCOME

We have already stressed the important role that debt plays in financing agriculture and food enterprises, though seen through the lens of cash investments that provide liquidity for financial institutions such as banks and credit unions to make loans. Investors have opportunities to be lenders themselves by investing in debt instruments that return a yield on a regular, fixed interval. Fixed income investments play an important role in diversified portfolios, and we see opportunities emerging to finance regenerative agriculture in both publicly traded debt securities, through bonds and bond funds, and in private markets, primarily through private debt funds or notes.

FIGURE 14

Investing in Regenerative Food and Agriculture with FIXED INCOME: PUBLIC BOND MARKETS

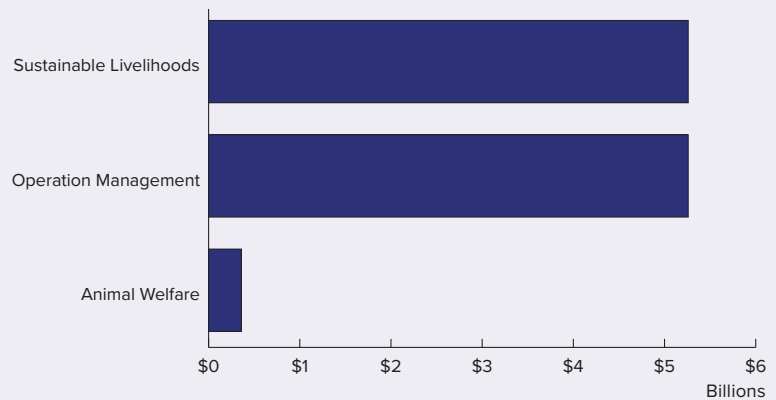
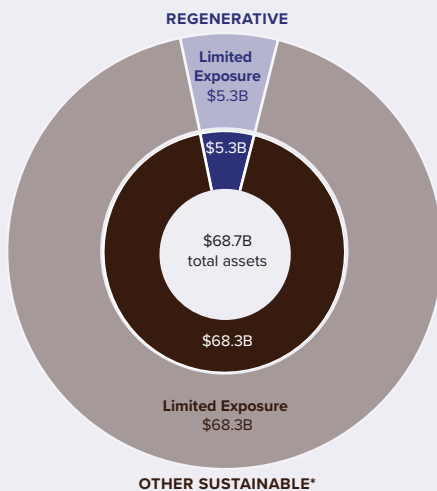
SUSTAINABLE 5 Strategies, \$68.7B Assets

REGENERATIVE 3 Strategies, \$5.3B in Assets

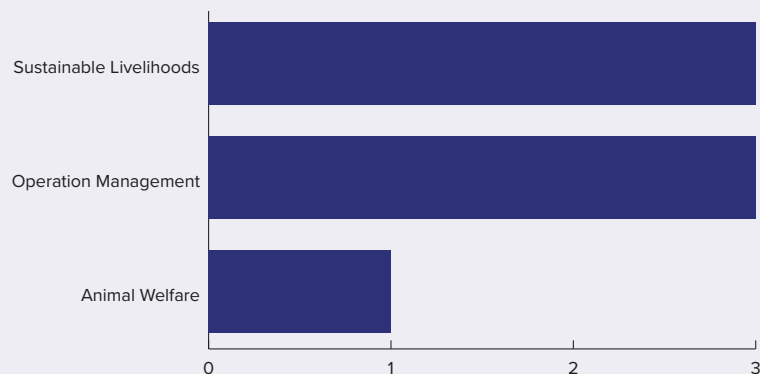
Sustainable Food & Agriculture Investments

Leading Regenerative Criteria Identified

BY ASSETS



BY COUNT



*Sustainable food and agriculture investments, excluding those classified as Regenerative.

Source: Croatan Institute.

PUBLIC BOND MARKETS

We identified approximately \$69 billion in US bond funds that explicitly integrate sustainable food and agriculture into broader fixed-income ESG or impact investment strategies. Bond funds managing less than \$5.3 billion in combined assets appeared to embrace regenerative agriculture criteria as well. In reviewing the actual bonds that incorporated these kinds of criteria, however, the actual exposure to food and agriculture remained relatively limited across most funds. Investors should therefore understand the limitations of using commingled fixed-income funds if they are seeking fuller exposure to regenerative agriculture in the public debt markets.

The challenge has to do with the limited nature of bonds available related to regenerative agriculture in the US. Even in the rapidly growing arena of “green bonds,” including those explicitly designed to have climate-related benefits, few have been issued to finance food or agriculture. Those that have been floated tend to be from issuers in foreign markets such as Brazil, international development financial institutions such as the World Bank Group, or multinational food and beverage companies, such as Starbucks, that have lacked any real relationship to regenerative agriculture.²⁴ Indeed, agriculture has largely been absent from the Climate Bonds Standard and Certification Scheme coordinated by the Climate Bonds Initiative, which describes the process as “a Fair Trade-like labelling scheme for bonds.”²⁵

Agriculture has been incorporated into the Climate Bonds Taxonomy under “Land Use,” but the only technical working groups that appear to have been convened under that rubric have focused on industrial land use and forestry.²⁶ A separate series of “Land Restoration and Conservation Criteria” for Climate Bonds excludes agricultural land care and other “commercial” approaches to land restoration, focusing instead, it seems, on pure wildlands and nature conservation. There is a “Protected Agriculture” set of criteria under development, but it focuses exclusively on indoor, greenhouse, and other protected environment approaches to agriculture, including

hydroponics, with little relationship to any of the features of regenerative agriculture, and with an emphasis on Mexico.

This lack of attention to regenerative agriculture by leading green bond field-building initiatives presents a major missed opportunity. As noted earlier in our discussion of cash investment opportunities, government agencies such as USDA and the FSA and government-sponsored enterprises such as Farm Credit and Farmer Mac play major roles in the agricultural credit markets in the United States, providing loans, loan guarantees, and a secondary market for other loans that are securitized and sold into the public debt capital markets in the form of bonds. This public and quasi-public finance increases access to capital and helps lower its cost to farmers and rural communities, and most states also have public agricultural or rural development finance agencies that issue both loans to borrowers and municipal bonds to investors, often for highly specialized projects or programs that have emerged out of the public policymaking process and public-private partnerships. With support from federal funding appropriated in the Farm Bill, for example, “Aggie Bonds” have commonly been issued by numerous state development finance authorities to subsidize farm loans for new and beginning farmers. The Council of Development Finance Agencies (CDFA), a nonprofit consortium for public finance authorities, has in fact recently identified “food systems” as ripe for the kind of attention that state and municipal clean energy bond finance has received over the last decade, often with the support of philanthropy and from a small handful of state “Green Banks” that typically provide credit enhancements to strengthen the credit ratings of clean energy municipal bonds.²⁷ As those explorations advance, it will be vital to ensure that food system bond finance incorporates the development of regenerative agriculture value chains into their frameworks while avoiding the pitfalls of embracing overly complex financial structure that embeds unnecessary risks into the financial features of the underlying contracts, as some green bonds have regrettably done.²⁸ Given the supply-demand dynamics we have observed in the green bond market, we think

24 Roberto Vitón, “[Green Bonds: A New Financing Tool to Foster a More Sustainable Agriculture](#),” Global AgInvesting, December 2017; and Climate Bonds Initiative and SITAWI, “[Can Green Bonds Finance Brazil’s Agriculture?](#),” November 2018.

25 Climate Bonds Initiative, “[Climate Bonds Standard & Certification Scheme](#),” February 2017.

26 Climate Bonds Initiative, “[Climate Bonds Taxonomy](#),” September 2018.

27 Council of Development Finance Agencies, “[Food Systems and Development Finance](#),” n.d. [2017]. For an introduction to domestic clean energy bond finance, see Joshua Humphreys, et al., “[What Investors Want: How to Scale Up Demand for U.S. Clean Energy and Green Bonds](#),” Croatan Institute and Clean Energy Group, December 2014.

28 For a cautionary critique of green bonds along these lines, see Bill Harrington, “[Can Green Bonds Flourish in a Complex-Finance Brownfield?](#),” Croatan Institute Working Paper, July 2018.

there would be a ready appetite among fixed-income ESG and impact investors for this kind of report. To advance one idea that has emerged from our research, we could readily envision applying the same kind of land-secured financing mechanism underlying Property Assessed Clean Energy (PACE) financing used to facilitate renewable energy and energy efficiency transactions, to finance up-front regenerative agricultural land improvements through the public debt capital markets. Under PACE or other land-secured assessment programs using “on-bill” financing, state and municipal finance authorities often issue revenue bonds for local assessment or improvement districts whose proceeds are then used to finance eligible improvements on properties within the districts. These loans are then repaid over a set period, often 10 to 20 years, as part of their property tax bill and in line with the maturity of the bond. In a conventional assessment district, the state or local government issues bonds to fund projects with a public purpose such as infrastructure projects involving clean energy, streetlights, sewer systems, or underground utility lines, but some states have also created agricultural assessment or improvement districts as well. Extending this financing model to rural areas that could be targeted for regenerative agriculture interventions—a “soil health improvement district” or a “regenerative organic agriculture district” (ROAD)—would allow property owners within the district to implement improvements without a large up-front cash payment.

With additional support from USDA NRCS or state planning authorities, these districts could be mapped to existing Soil and Water Conservation Districts, regional councils of government (COGs), or other planning districts, with targeting to high-priority areas such as critical watersheds. USDA, state agriculture departments, or other local, state, or federal authorities could then also provide credit enhancements to facilitate deals, such as state and federal tax credits to incentivize property owners to participate or pay-for-success features if measurable outcomes were achieved. Public bond guarantees could be added to portions of the bonds to enhance their credit ratings or subsidize a taxable series of bond issuance, in order to attract a wider range of institutional bond buyers, such as nonprofit foundations and endowments that may not need exposure to a tax-exempt muni bond offering. Because PACE assessments have been structured as a voluntary debt of property, rather than an asset-based or individually secured debt, the repayment obligation may transfer with property ownership if the buyer agrees to assume the obligation and the new first-mortgage holder allows the obligation to remain on










What makes public debt markets ripe for intervention in support of regenerative agriculture is that the nature of credit can be structured in highly tailored ways

the property. The extended timeframe of repayment could be structured to allow farmers or farmland investors ample time to reap the benefits of any upfront costs associated with implementing new regenerative strategies.

What makes public debt markets ripe for intervention in support of regenerative agriculture is that the nature of credit can be structured in highly tailored ways, with financial features related to tenor, yield, tax treatment, credit enhancements, and a clear use of proceeds. Deeper engagement with leading underwriters that serve as intermediaries between bond issuers and investors in the agricultural and public debt markets would be valuable, as would outreach to bond buying fixed-income managers and groups such as CDFAs, the National Council of State Agricultural Finance Authorities, and green bond field-building organizations. Opportunities abound for straightforward innovations using conservative, tried-and-true methods from the bond markets that could attract capital from a new breed of market-rate fixed-income investors who may lack the appetite to dip into the private debt markets, where considerably more activity has taken place to date.

FIGURE 15

MECHANISMS, INSTRUMENTS AND APPROACHES IN FIXED INCOME: PUBLIC BONDS MARKETS

Mechanism, Instruments or Approach	Example	Opportunities for Supporting Regenerative Agriculture	Regenerative Ready
Green Bonds	Climate Bonds	Explicitly integrate regenerative agricultural project characteristics into the Climate Bonds Standard and Certification Scheme.	
Credit enhancement for green bonds	Philanthropy and “Green Banks” provide enhancements to strengthen the credit ratings of green municipal bonds.	Incorporate the development of regenerative agriculture value chains into food system bond finance frameworks. Credit enhancements and public bond guarantees could be provided to facilitate transactions.	
Land-secured assessment financing	Property Assessed Clean Energy (PACE) financing	Use this financing model to target regenerative agriculture interventions in rural areas, such as a “regenerative organic agricultural district,” allowing property owners within the district to implement improvements without large up-front cash payments.	
Discount rates and interest rates	Integrating the change in risk of an agricultural operation due to improvements in soil health can be reflected in several places on the balance sheet, but when investments in farmland are considered, the discount rate that is chosen poorly reflects the changes in risk and resiliency of improved soil health. (Also applies to Private Debt)	Investment professionals need appropriate tools to assess investments in agricultural land, as well as the effects of management on the degradation or regeneration of soils and its implications on investment decisions.	
Farm Credit bonds	Farm Credit institutions, a network of federally chartered financial institutions designed to provide credit-related services to the agricultural and farming sectors of the economy, raise funds by issuing farm credit debt securities on a worldwide basis in the domestic and global capital markets.	Could raise debt securities focused on raising capital that matched the risk and return of soil-health promoting agricultural enterprises, perhaps labeled a Soil Health Bond.	
Secondary market for agricultural credit	Farmer Mac was created to increase access to and reduce the cost of capital to benefit agricultural and rural communities in the US.	Could create secondary pooling of debt of soil health-focused production agriculture and agri-businesses, to match the risk and return of these enterprises.	
Blended capital facility	Maine Harvest Credit Project	Finance Facilities could be developed to support the participation of any number of finance sources with different risk and return expectations focused on incentivizing building soil health and support-ing regenerative agriculture enterprises in the U.S.	
Loan guarantees	The FSA has a loan-guarantee program with a \$150 million set aside for conservation projects, which went unutilized in both FY2017 and FY2018	Government programs and private philanthropic actors can provide guarantees to enhance public and private loans to regenerative agriculture enter-prises along the value-chain.	
Aggie bonds	Federal-state program allows private lenders to receive tax-exempt interest, lowering the interest rates for loans to beginner farmers and ranchers. In the peak year of 1984, 24 states had tax-exempt bond agricultural loan programs, but in 2016 only five states used the Aggie Bond program.	Can be applied to beginning farmers practicing regenerative agriculture, although based on the current federal and state guidelines, bonds are not exclusive to these practices. The program could be modified to include regenerative agricultural fea-ture requirements for beginning farmers and could be used much more widely than it is today.	

PRIVATE DEBT MARKETS

In private debt markets, a rather different picture emerges with much more activity than in the public bond markets. We identified 25 private loan funds with \$3.6 billion in combined AUM that had some explicit sustainable food or agriculture criteria incorporated into the investment process. Just over half of these funds give investors full exposure to food and agriculture, while the remaining are part of more diversified environmental or social impact investing themes. Of this broader group of sustainable debt funds, we identified 17 funds with \$2.8 billion in combined assets that incorporated at one or more criteria related to regenerative agriculture. Ten of them, with nearly \$2 billion in combined assets under management, were specialized in food and agriculture,

FIGURE 16

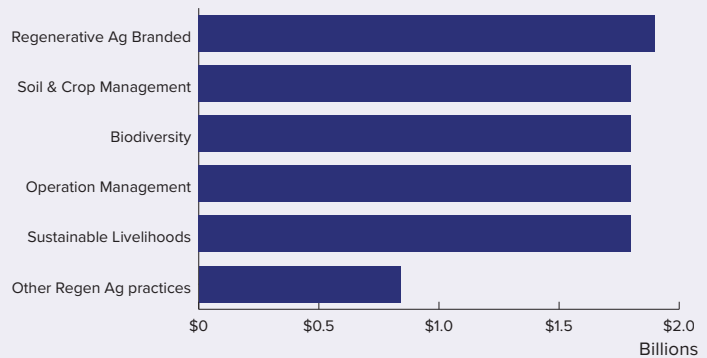
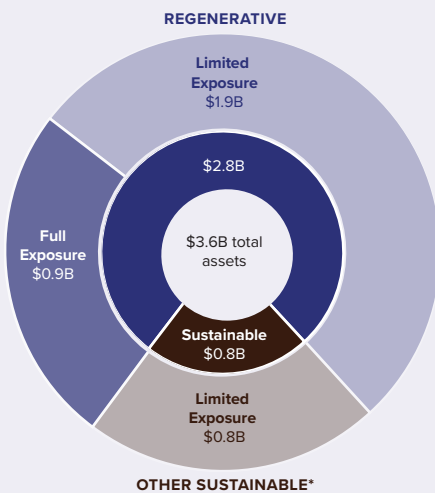
Investing in Regenerative Food and Agriculture with FIXED INCOME: PRIVATE DEBT

SUSTAINABLE 25 Strategies, \$3.6B Assets
REGENERATIVE 17 Strategies, \$2.8 Billion in Assets

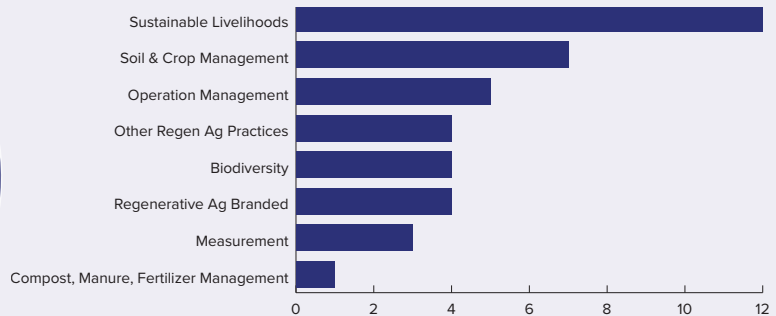
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*Sustainable food and agriculture investments, excluding those classified as Regenerative.

Source: Croatan Institute.

giving investors a fuller exposure to the sector. Only seven were part of more diversified private debt strategies, cutting across other thematic impact areas.

As we have already suggested earlier, CDFIs and nonprofit groups associated with food and agriculture networks are gathering debt capital from investors to create private pooled loan funds to finance food and agriculture systems with some limited regenerative features, often in highly targeted geographies. The Slow Money network, coordinated by the nonprofit Slow Money Institute, most explicitly focuses on food and agriculture investing, but with a specific emphasis on investing in local food systems, farmers, and food enterprises. Regenerative agriculture is not an explicit framing concept for Slow Money, but “soil health” is a common refrain. Slow Money founder Woody Tasch’s most recent book on the movement in fact is called SOIL, and the network has experimented with various charitable, donation-based financing concepts such as The Soil Trust and Slow Opportunities for Investing Locally (SOIL), which pools donations into a 0%-interest loan pool.²⁹ Guided by a series of aphoristic principles that have been signed by more than 31,000 individuals, Slow Money investors tend to invest in patient ways “as if food, farms, and fertility mattered,” using “nurture capital” rather than venture capital, typically with lower rates of return and sometimes even with 0%-interest loans with no expectation for an investment return, beyond a return of principal.³⁰

Because most Slow Money focuses on local food, the network is highly decentralized across dozens of self-organized local groups in 18 states that have reportedly invested \$66 million in nearly 700 farms and food enterprises, as of this writing. This localized nature of Slow Money means that their investments have taken a variety of different forms. In some places, the local networks remain highly informal or simply engage in match-making between borrowers and lenders, who execute one-off promissory notes, rather than pooling capital in any professionally managed way. In other cases, Slow Money groups have formalized their work into nonprofits (for example, in North Carolina and San Luis Obispo, California) or investment clubs (in Colorado, west Georgia, Iowa, Maine, and Nebraska).

Some Slow Money-affiliated local groups, such as Austin Foodshed Investors in central Texas and Pioneer Valley Grows in central Massachusetts, have developed wider investment platforms or vehicles. Austin Foodshed Investors, an angel investor group, explicitly integrates regenerative agriculture in its formulation of Slow Money and has recently expanded its work into Foodshed Investors, LLC, a national platform for both accredited and non-accredited investors interested in financing food enterprises and farms beyond central Texas. Foodshed Investors directs people to local investment crowdfunding offerings around the country, but for accredited investors, they have also developed several highly tailored lending programs to meet specific needs of farmers transitioning toward more regenerative practices.

For example, Foodshed Investors has developed a bridge loan specifically for farmers that participate in USDA’s Environmental Quality Incentives Program (EQIP), which reimburses farmers for costs associated with implementing NRCS-approved conservation projects, some of which support regenerative objectives. However, because EQIP payments are structured as reimbursements, farmers must have the up-front capital to spend before they can receive those reimbursements. Foodshed Investors consequently developed a short-term bridge loan to help farmers meet this funding gap, and individual investors can decide whether to invest in any particular transaction.³¹ They also have a “Soil Enhancement” theme for debt-financing farm improvements that increase soil health by adopting regenerative techniques, such as those associated with the “Nourished by Nature” approach of North Dakota rancher Gabe Brown.

In the Pioneer Valley of central Massachusetts, a consortium of foundations, including the Solidago, Lydia B. Stokes, and Henry P. Kendall Foundations, Slow Money investors, and community development groups developed the PVGrows Investment Fund, a lending vehicle managed by the Franklin County Community Development Corporation. PVGrows has three different notes structured with varying terms for different kinds of investors, ranging from a 3-year 2% note to a longer-term, 8-year 4% note, as well as a risk capital pool paying money-market rates for investors willing to fund a

29 Woody Tasch, *SOIL: Notes towards the Theory and Practice of Nurture Capital* (Slow Money Institute, 2017); as well as Tasch, *Inquiries into the Nature of Slow Money: Investing as if Food, Farms, and Fertility Mattered* (White River Junction, Vt.: Chelsea Green, 2010). The Soil Trust, a national vehicle for pooling Slow Money investments, seems to have been abandoned because of the radical localism of the network. The SOIL 0%-interest lending vehicle is being developed on the Front Range of Colorado; see [“An Invitation \[to\] SOIL: Slow Opportunities for Investing Locally.”](#)

30 See Slow Money, “Principles.”

31 See Foodshed Investors, “How Does the EQIP Bridge Loan Work?”

loan-loss reserve for the fund.³² The fund has a triple-bottom-line approach that focuses more on equitable food systems than it does on regenerative agriculture. Nonetheless, in developing these three offerings, the fund recognizes that different forms of capital must be blended together to mobilize a variety of different kinds of investors, including philanthropic capital that could be deployed as a concessionary program-related investment.

Such “integrated capital” approaches to investment are increasingly recognized as providing a valuable way to finance challenging food and farming system transitions. As mentioned above, RSF Social Finance, the San Francisco-based nonprofit philanthropic lender, has pioneered this approach by assembling a toolkit of both financial and non-financial elements, ranging from secured and unsecured loans and loan guarantees to grants, technical assistance, and advisory and network support. To support its deployment of integrated capital specifically for regenerative agriculture, RSF has formed two special philanthropic collaboratives: a Soil Health Capital Collaborative for interested donors to provide philanthropic support to finance “social enterprises and projects that are advancing regenerative agricultural practices and healthy carbon cycles,” and a Biodynamics Capital Collaborative, which focuses specifically on supporting Demeter-certified Biodynamic farms and businesses that source from them.³³ (Given RSF’s roots as the Rudolf Steiner Foundation, it is logical that the

organization views biodynamic farming, which Steiner founded a century ago, as a pathway to regenerative agriculture.³⁴) We consider these philanthropic funding pools as “catalytic” because they help unlock other private investments that may not otherwise be possible, and numerous foundations affiliated with groups such as the Agroecology Fund, the Global Alliance for the Future of Food, and the No Regrets Initiative, including the Globetrotter Foundation, the W. K. Kellogg Foundation, the McKnight Foundation, the Swift Foundation, and the Thread Fund, among others, have helped pioneer such catalytic approaches using loan-loss reserves, loan guarantees, program-related investments, and Integrated Capital.³⁵

Alongside these philanthropic pools, private debt investors in RSF have two different lending vehicles in which they can gain exposure to food and agriculture: the flagship Social Investment Fund, which includes food and agriculture enterprises as one of three core themes and requires a minimum investment of \$1,000; and the Food System Transformation Fund, which focuses on the “missing middle” of food production and distribution and has a \$100,000 minimum investment designed more for foundation program-related investments and family offices. RSF has used its integrated capital model to blend philanthropic grant funding from the Soil Health Capital Collaborative and debt from the Food System Transformation Fund to provide financing to groups

Intergenerational learning through regenerative farming practices. Courtesy of Olive Watkins.



32 The offering memorandum [can be found here](#) (July 2019), but the opportunity is only available to New England-based investors.

33 RSF Social Finance, “[Soil Health Capital Collaborative](#).”

34 See John Bloom, “[Biodynamics: Where Regenerative Agriculture Meets Regenerative Capital](#),” TriplePundit, January 2018.

35 See, e.g., Jennifer Astone and Tim Crosby, “[Transforming Food Systems: The Power of Integrating Grant and Investment Capital](#),” AgroEcology Fund and Global Alliance for the Future of Food, January 2019.

like the Grass Roots Farmers' Cooperative, a co-op of pasture-based, small-scale regenerative livestock farmers in Arkansas. RSF was willing to take perishable meat as collateral when few other bank lenders were willing to do so, highlighting the potential flexibility private debt investing can play.³⁶

For farmers aiming to go through the transition to become a certified organic operation, Iroquois Valley Farmland REIT has developed a flexible private lending solution, with support from a USDA Conservation Innovation Grant. Organic certification often requires a three-year transition process that has repeatedly been described as a “valley of death” for farms, stretching over a period of time during which farmers are growing with organic methods but cannot yet market their products with the USDA certified organic label, which often carries a substantial price premium. Iroquois Valley's investment thesis focuses on soil health through organic transition, but as a complement to their primary business of investing in real assets, acquiring conventional farmland and converting it to organic, the firm also finances mortgages for farm families. To get farms through the “valley of death”, Iroquois Valley, with the support of a USDA Conservation Innovation Grant, developed what it calls a “Soil Restoration Note,” a 5-year, 2.5% unsecured private debt investment that also includes a 0.5% “organic transition pool” to provide flexible support to farms undergoing the transition process.

Among private debt investments, these groups are among the few to give investors direct exposure to regenerative agriculture themes. Numerous CDFI loan funds include food and agriculture among their community development areas of focus, and the aforementioned Healthy Food Finance Initiative, managed by the Reinvestment Fund in Philadelphia, has provided financial assistance to numerous CDFIs to expand or develop food system finance portfolios and programs, though with a focus on food access in communities with limited retail options.³⁷ Explicit references to regenerative agriculture among CDFI loan funds are rarely found, and few community loan funds provide a structured investment product that gives an investor full exposure to the food and agriculture segments of their lending portfolios. Coastal Enterprises, Inc. in Maine has a Sustainable Agriculture and Food Systems program that has made more than \$10 million in loans to farms and value-chain food

enterprises over the last five years, including several involved in organic, pasture-based farming systems. New Hampshire Community Loan Fund has a Farm Food Initiative that has made loans or opened lines of credit for pasture-based farms and an organic bakery. However, investors can only invest in the loan fund as a whole, and in a portfolio where 90 percent goes toward affordable housing projects, so their exposure is relatively limited. Natural Capital Investment Fund, a community loan fund based in West Virginia with lending operations extending across Appalachia and the southeast, has a local foods and value-added agriculture theme within its portfolio, and it has financed important value-chain enterprises supporting organic farms. FORGE Community Loan Fund in Huntsville, Arkansas, was originally founded by a group of organic farmers associated with the Ozark Organic Growers Association. Although it continues to be guided by a strong agrarian ethos, its community development mission has expanded to focus more widely on farm and small business lending across the entire state of Arkansas, southern Missouri, and eastern Oklahoma. Craft3, a CDFI loan fund in the Pacific Northwest, also has a well-established food and agriculture lending program that has included loans to important field-building organizations such as the Organic Seed Alliance and several organic farms often with conservation features. In short, numerous CDFI loan funds all around the country are lending to food and agriculture businesses with strong environmental and community profiles, but rarely can investors interested in financing regenerative agriculture in a more direct and focused way gain more than only the most diffuse investment exposure to this segment through community development loan funds. Engaging with leading funds like those described here could place this emerging trend more centrally on their radar screen as lenders, as one can find with firms like RSF Social Finance and Iroquois Valley or Slow Money-affiliated lenders.

Although the amount of private debt capital that we have identified for regenerative agriculture remains relatively limited, the fact remains that this asset class provides some of the most flexible forms of capital available, so we view it as a place for considerable expansion. Private debt can have multiple levels of subordination in relationship to other forms of capital, and loan guarantees and loan-loss reserves can be used to mitigate risk and provide multiple access points for investors with different financial and impact objectives. These credit

36 Kate Danaher, “Arkansas Co-op Shifts Status Quo in Livestock Farming,” RSF Social Finance, November 2017.

37 Nessa Richman and Patty Cantrell, “A New Ally for Sustainable Agriculture in the Finance Department,” National Sustainable Agriculture Coalition, February 2012; and Susan Cocciarelli, “Financing Farming in the US: Nine Case Studies of Community Development Financial Institution Lending in the Farm Production Sector,” Center for Regional Food Systems, Michigan State University, September 2013.




enhancements can be financed through government agencies and GSEs, whether through existing SBA, Treasury, and USDA programs, or in the development of new programs designed to encourage regenerative agriculture. As we have seen, private investors can step in to provide credit enhancements as well. Also, the underwriting process of private debt investments ranges much more widely than the decision-making criteria found at most regulated depository institutions and financial intermediaries that we analyzed in the cash asset class. This is precisely why several members of the Farm Credit System, including Farm Credit East, CoBank, and Yankee Farm Credit, developed FarmStart LLP, and structured it as a partnership in order to apply more flexible underwriting standards than those typically required for Farm Credit loans.

Currently, many private debt options have relatively low rates of return, but stacking capital in more creative and coordinated ways should yield benefits for investors willing to take additional risk. For example, fixed-income investors typically working in public markets could provide take-out financing for bundled loans syndicated by private debt investors. Within capital stacks, loan guarantee and loan-loss reserve pools could be invested more aggressively in liquid public markets, providing capital for public managers to step up their game in the regenerative agriculture space.

Many private debt options have relatively low rates of return, but stacking capital in more creative and coordinated ways should yield benefits for investors willing to take additional risk.

FIGURE 17










**MECHANISMS, INSTRUMENTS AND APPROACHES
IN FIXED INCOME: PRIVATE DEBT MARKETS**

Mechanism, Instruments or Approach	Example	Opportunities for Supporting Regenerative Agriculture	Regenerative Ready
Tax credits	New Market Tax Credit, or a State Tax Credit, such as the Colorado Tax Credit	As part of a rural resiliency strategy, these tax credits could be used to entice investors to invest in businesses along the regenerative agriculture value chain in targeted regions.	
On-bill financing	On-bill financing allows a utility to incur the cost of a clean energy upgrade or energy efficiency improvements, which are then repaid on the utility bill, with the upfront capital being provided by a third party, not the utility. The loan may be transferable to the next owner of the home or building.	Incorporate the development of regenerative agriculture value chains into food system bond finance frameworks. Credit enhancements and public bond guarantees could be provided to facilitate transactions.	
Environmental impact bonds (EIB)	Property Assessed Clean Energy (PACE) financing	Use this financing model to target regenerative agriculture interventions in rural areas, such as a "regenerative organic agricultural district," allowing property owners within the district to implement improvements without large up-front cash payments.	

(continued on next page)

FIGURE 17

**MECHANISMS, INSTRUMENTS AND APPROACHES
IN FIXED INCOME: PRIVATE DEBT MARKETS (CONTINUED)**

<p>Accessing low-cost government loan and loan-guarantees as catalytic capital to increase lending</p>	<p>The Small Business Administration (SBA)'s 7(a), the Community Development Corporation (CDC)/504 loan guarantee programs, or the SBA's Microloan program, provide funds to specially designated non-profit intermediary lenders, which then issue loans to eligible borrowers, and small businesses with small, short-term loans — up to \$50,000 — for working capital or to buy inventory, supplies, furniture, fixtures, machinery and equipment.</p>	<p>Modify terms to access federal funding as part of a rural resiliency strategy, allowing for more investment across the regenerative agricultural value chain.</p>	
<p>Pairing technical assistance with financing</p>	<p>The Carrot Project and financial intermediaries such as private debt funds</p>	<p>Pair technical expertise in regenerative agriculture to the loans provided to food and agriculture businesses (could apply to other asset classes).</p>	
<p>Pooled loan funds</p>	<p>Slow Money Soil Trust and Slow Opportunities for Investing Locally (SOIL) pools</p>	<p>Similar 0%-interest pooled loan funds could target farms and associated businesses in the value chain who are transitioning to regenerative agriculture.</p>	
<p>Unsecured private debt instruments</p>	<p>Iroquois Valley Farmland REIT's "Soil Restoration Note"</p>	<p>Design similar debt notes in such a way as to provide flexible support to farms undergoing the transition to organic.</p>	
<p>Tailored lending programs</p>	<p>Austin Foodshed Investors</p>	<p>Tailored lending programs could meet specific needs of farmers transitioning toward more regenerative practices while providing accredited investors with access to tailored fixed income investment networks.</p>	
<p>CDFI loan funds</p>	<p>Coastal Enterprises, Inc.'s Sustainable Agriculture and Food Systems program</p>	<p>Engage with CDFI loan funds to develop tailored programs to help investors interested in financing regenerative agriculture gain more targeted private debt exposure through community development loan funds.</p>	
<p>Philanthropic loan loss reserves and loan guarantees</p>	<p>PVGrows Investment Fund, a lending vehicle managed by the Franklin County Community Development Corporation in the Pioneer Valley of Massachusetts, has a risk capital pool funded by foundations that serves as a loan-loss reserve for its community loan fund financing regional food systems.</p>	<p>Within capital stacks, loan guarantee and loan-loss reserve pools could be invested more aggressively to de-risk loans for regenerative agriculture operations and the food system businesses that are sourcing and supplying them in the regional value chain.</p>	
<p>Integrated capital approaches</p>	<p>RSF uses this approach regularly across their investments. One example is when they blend philanthropic grant funding from the Soil Health Capital Collaborative and debt from the Food System Transformation Fund to provide financing for regenerative agriculture projects.</p>	<p>Work together to develop similar integrated capital approaches involving different asset owners and managers. We need more institutions working with their peers to leverage different types of capital to meet the needs of the emerging sector of regenerative agriculture.</p>	
<p>Patient capital</p>	<p>Slow Money local networks and investment clubs connect food system entrepreneurs to like-minded investors, where they can receive low- or no-interest loans and other forms of patient capital. (Also applies to Private Equity)</p>	<p>Slow Money has been traditionally used to support "local" food systems, but it could become more explicitly targeted to regenerative food systems.</p>	

PUBLIC EQUITY

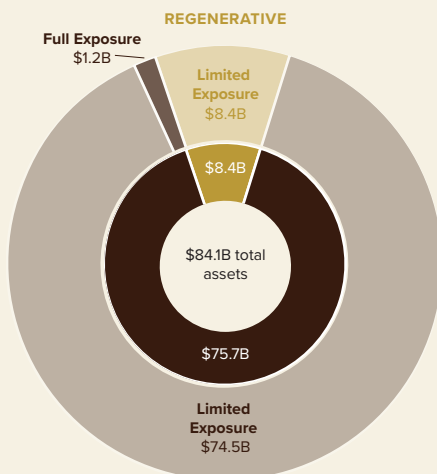
In public equities, we identified 15 strategies with more than \$84 billion in assets under management subject to some sustainable food or agriculture investment criteria, but only four of them, with \$8.4 billion in combined assets, appear to include criteria aligned with regenerative agriculture outcomes. None of those were specialized investment strategies focused exclusively on food and agriculture. Instead, they were simply one facet of a broader sustainable, responsible, impact investing strategy with multiple ESG factors in play. Investors' exposure consequently remains partial and limited. In fact, considering the specific regenerative criteria represented in

FIGURE 18

Investing in Regenerative Food and Agriculture with **PUBLIC EQUITY**

SUSTAINABLE 15 Strategies, \$84.1B in Assets
REGENERATIVE 4 Strategies, \$8.4 Billion in Assets

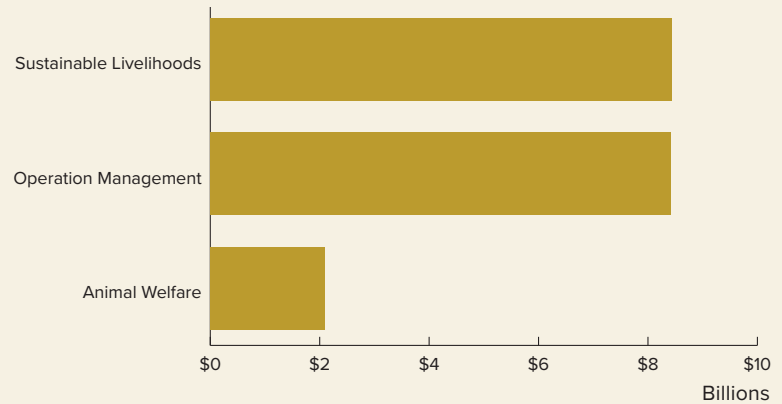
Sustainable Food & Agriculture Investments



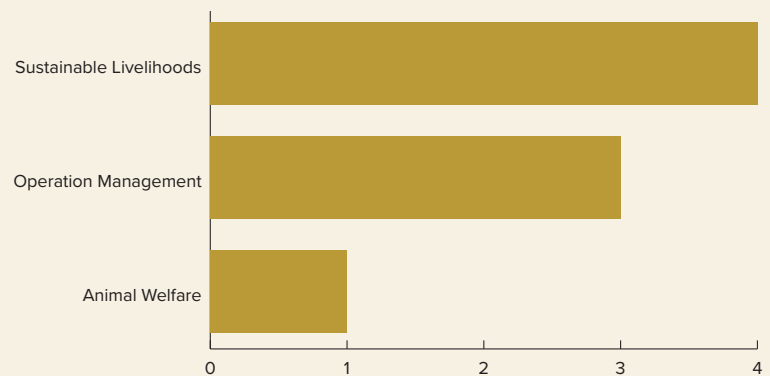
OTHER SUSTAINABLE*

Leading Regenerative Criteria Identified

BY ASSETS



BY COUNT



OTHER SUSTAINABLE*

*Sustainable food and agriculture investments, excluding those classified as Regenerative.

Source: Croatan Institute.

asset-weighted terms, sustainable livelihoods in food and agriculture supply chains is the most commonly cited criterion for investment, highlighting that the social dimension of ESG investing is a major emphasis for listed equity fund managers.

When listed equity investors engage on food and agriculture, we repeatedly find them drilling down on very specific single issues. For example, the Farm Animal Investment Risk and Return (FAIRR) Initiative, an investor network with more than 50 institutional investors and over \$11 trillion in combined assets under management, focuses on the ESG risks associated with factory farming. They have set up several corporate engagements, in coordination with the Ceres Investor Network, to encourage companies to address risks associated with sourcing from factory farms.³⁸ A new US Vegan Climate Exchange-Traded Fund has also been registered with the SEC by a New Jersey-based firm called Beyond Advisors; to be launched this year, the ETF is both fossil free and screens out companies that harm animals. As we have seen, regenerative agriculture practitioners typically have a more holistic approach to animal welfare—one that views managed grazing on pasture as a critical component of improving soil health. Animal welfare is one important component of regenerative agriculture, but greater focus may need to be placed on proactive investment opportunities if listed equity investors want to find alignment with regenerative agriculture.

The Calvert Principles for Responsible Investment, a guiding framework for Calvert Investments, now a division of Eaton Vance, has included reference to investing in organic food companies for many years. There is also now an ETF focused on the organic market. The Organics ETF (ORG), launched in 2016 and managed by Janus Henderson Investors, tracks the Solactives Organic Index. It “seeks exposure to companies globally that can capitalize on our increasing desire for naturally-derived food and personal care items, including: companies which service, produce, distribute, market or sell organic food, beverage, cosmetics, supplements, or packaging.” Beyond this, there is really no dedicated strategy that gives investors full exposure to sustainable food and agriculture in public equities.

London-based Impax Asset Management, which recently merged with the long-standing US SRI

manager PAX World Management, runs a Food & Agriculture Strategy for European investors, but it is not available in the US. Launched in late 2012, the strategy, which has approximately GBP 600 million in AUM (around \$780 million), is described as an “all-cap equity strategy investing in the most innovative leaders in sustainable food supply, resource efficiency and nutrition.”³⁹ Whether Impax or PAX World could open a variant of the strategy for US investors, given the growing attention to food and agriculture investing opportunities, is certainly worth considering. For the time being, US-based listed equity managers, even those with some of the most well-informed food and agriculture sector analysts, have elected to invest in this space as one of many sustainable or ESG investing themes and with the regenerative farm and food systems dimension largely overlooked. Rarely are issues of soil health or holistic ecosystem approaches to agriculture put forward in this asset class.

Nevertheless, several publicly traded companies have started to claim the mantle of “regenerative agriculture” in their own sourcing practices, and listed equity investors in those kinds of companies are well placed to hold them true to their words by seeking data on their deeds. Danone, General Mills, Unilever, and VF Group are just four prominent publicly traded, multinational, consumer-facing businesses to embrace regenerative farming. Investor engagement, when strategically pursued, can be one of the most forceful ways for public equity investors to have demonstrable social and environmental impact. Shareholders in publicly traded companies have specific rights in the proxy process that give them valuable levers for engaging with companies. Beyond the FAIRR engagements mentioned earlier, public equity investors have traditionally focused on very specific sustainability issues related to food systems, such as climate risk associated with deforestation in the palm oil supply chain, the effects of chemical pesticides on pollinators, farm worker pay, and waste management at restaurants and grocery chains, including food waste and single-use plastics. Investors can push the companies they own to use their purchasing power to source from regenerative farms and support the value chains associated with them.⁴⁰ Given the longer-term timeframes involved in rebuilding soil health and reaping the benefits of regenerative practices, not to mention the weakness of carbon markets that could theoretically help growers monetize the soil carbon they are sequestering,

38 FAIRR Initiative, “[Factory Farming: Assessing Investment Risks](#),” 2016.

39 Impax Asset Management, “[Food & Agriculture Strategy](#),” as of February 2019.

40 Sarah Shemkus, “[Activists Take the Fight for Fair Food to Shareholder Meetings](#),” *Civil Eats*, April 9, 2018.

publicly traded companies have a critical role to play in supporting this transition. Peter Weisberg, formerly of The Climate Trust, has argued that long-term contracts that provide a premium for regenerative agricultural practices could go a long way toward bridging revenue gaps that often arise in the first 3-5 years of integrating regenerative practices.⁴¹ Major purchasers such as Walmart played precisely such a role with west Texas organic cotton producers by paying them a certified organic premium even before they had finalized the three-year organic transition. Apparel companies such as Wrangler Jeans, a division of VF Corp.,

are exploring ways to enhance soil health through regenerative practices within the cotton supply chain, in collaboration with the Soil Health Institute and the Nature Conservancy.⁴² Investors in publicly traded companies can engage with companies along precisely these lines, using their voice as shareholders to stress the business and investment case. Investing in publicly traded companies that have such huge effects on the regenerative food and agriculture value chain could in this sense be a useful complement to investing more directly in the regenerative transition in alternative asset classes such as farmland and private debt.

Heirloom tomato harvest at Common Ground Farm in New York. Courtesy of Susan Paykin.







41 Peter Weisberg, “Scaling Regenerative Agriculture,” The Climate Trust, April 2018.

42 Wrangler, “Seeding Soil’s Potential: Building Soil Health in Cotton Production to Maximize Environmental and Economic Value,” Wrangler Science and Conservation Series, vol. 1 (April 2018).

FIGURE 19

MECHANISMS, INSTRUMENTS AND APPROACHES IN PUBLIC EQUITY

Mechanism, Instruments or Approach	Example	Opportunities for Supporting Regenerative Agriculture	Regenerative Ready
Shareholder engagement	Opportunities for engagement with publicly listed companies	Public companies in the food and agriculture value chain could be engaged with to move their practices and supply chain to implement regenerative agricultural principles and practices. A specific opportunity includes engaging with publicly listed banks on their newly created Platform for Carbon Accounting Financials to ensure that regenerative food and agriculture is integrated into the Platform, not only renewable energy projects. (See Cash and Cash Equivalents section)	
Investor network	The Farm Animal Investment Risk and Return (FAIRR) Initiative, an investor network focused on the ESG risks associated with factory farming.	Develop a coordinated focus on soil health or regenerative agriculture in the public equities market via investor engagement or coordinated action.	
Exchange Traded Funds (ETFs) and Mutual Funds	The Organics ETF (ORG) managed by Janus Henderson Investors	There could dedicated strategies that give investors full exposure to regenerative food and agriculture in public equities in the US.	
Integrating ESG criteria into investment process	The Calvert Principles for Responsible Investment include reference to investing in organic food companies, and serve as a guiding framework for Calvert Investments, now a division of Eaton Vance.	Engagement with money managers to begin integrating regenerative agriculture criteria into their investment process.	

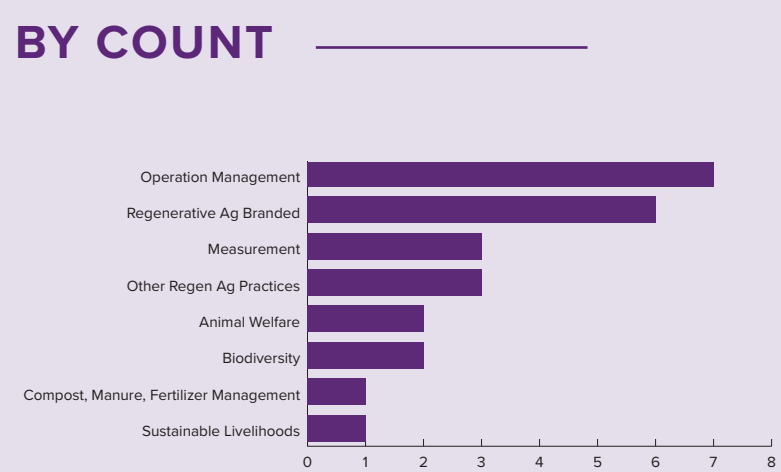
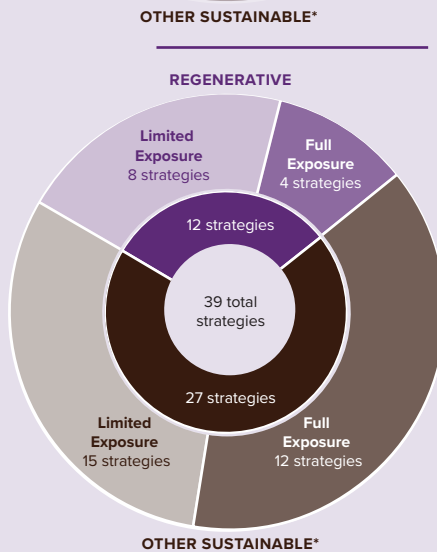
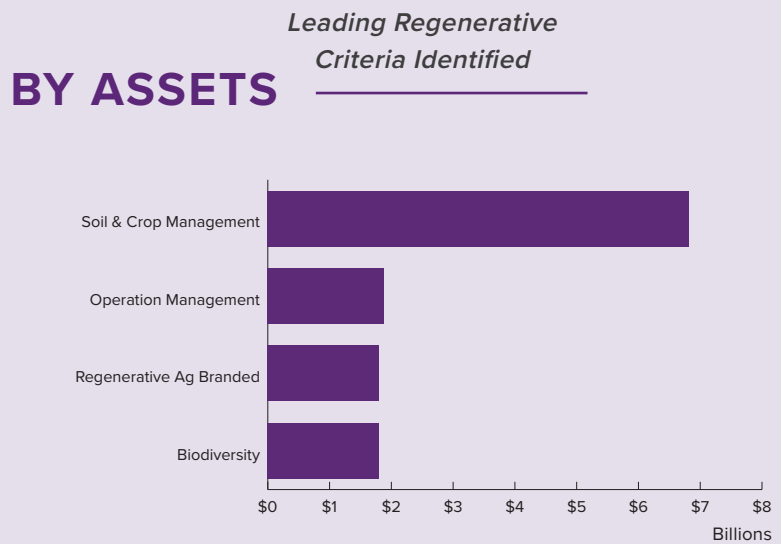
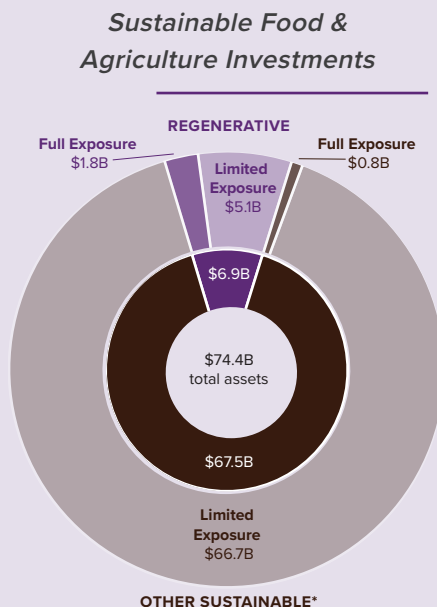
PRIVATE EQUITY AND VENTURE CAPITAL

Private equity and venture capital constitute a potentially important asset class for regenerative agriculture, primarily for investing in value-chain companies supplying regenerative farms with products and services or sourcing from them. Out of a universe of 39 strategies with more than \$74.4 billion in committed capital working within sustainable food and agriculture themes, we identified 12 private equity and venture capital (VC) funds with nearly \$7 billion that had criteria or portfolio companies aligned with regenerative food and agriculture. And the space is growing rapidly. Foodshot Global, for example, founded by venture capitalist Victor Friedberg of S2G Ventures, announced in September 2018 that it was developing a multi-asset class investment platform that

FIGURE 20

Investing in Regenerative Food and Agriculture with PRIVATE EQUITY AND VENTURE CAPITAL

SUSTAINABLE 39 Strategies, \$74.4B in Assets
REGENERATIVE 12 Strategies, \$6.9 Billion in Assets



*Sustainable food and agriculture investments, excluding those classified as Regenerative.

anticipated making private equity investments up to \$10 million in new companies supporting a regenerative “Soil 3.0” paradigm at the intersection of food and AgTech.⁴³ Additionally, in June 2019, \$3 million in investments were catalyzed for a soil microbiome testing startup, and over half a million in grant funding was awarded through its Breakthrough Prize to three research initiatives.⁴⁴ Dan and Dave Barber, co-founding brothers of Blue Hill Farm and Blue Hill at Stone Barns in New York, recently launched Almanac Investments, a \$30 million fund to “bring venture capital to regenerative agriculture.”⁴⁵

Opportunities to deploy private equity range widely, from early stage angel investment and seed venture capital particularly in agricultural technology (AgTech) to leveraged buyouts of businesses across the value chain. Private equity investment is financing upstream companies focused on inputs such as compost and other chemical-free soil amendments. Companies like SymSoil, a startup in Solano County, CA, and Midwestern BioAg, have raised approximately \$50 million in venture funding, including from mission investors such as McKnight Foundation and faith-based investors such as the Franciscan Sisters of Mary. S2G Ventures led a \$21 million venture round in which these mission-driven investors participated.⁴⁶

Private equity investors are also investing in AgTech companies involved in data and management to help farmers manage livestock and crops more regeneratively or in soil measurement and other tools that verify regenerative results. Private companies such as PastureMap have created apps for mapping and analyzing farm and ranch data. PastureMap is currently being used by numerous leading regenerative agriculture ranchers. Founded in 2014, the company has raised \$3.2 million in angel and seed capital from a mix of venture capital funds and impact investors, including ImpactAssets and Cienega Capital.⁴⁷

Private companies are also creating corporate venture capital funds. Patagonia created a \$20 million venture fund called Tin Shed Ventures to invest in early stage companies that are addressing environmental problems, including those related to agriculture. The company had

invested directly into organic cotton growers when few others would do so, and soil health remains an important theme of Tin Shed Ventures’ portfolio, which includes investments in companies such as California Safe Soils that create certified organic soil amendments from grocery store food waste.

In addition to AgTech strategies and corporate venture that support regenerative agriculture, numerous private equity funds are financing companies working in the regenerative, organic agriculture value chain. Downstream agricultural companies such as processors, handlers, aggregators, storage facilitators, and other infrastructure enterprises need to be equipped to segregate non-GMO and organic produce sourced from regenerative farms to ensure compliance with certification standards. For example, as part of a broader ESG investing strategy, AMERRA Capital Management, an agribusiness focused firm using private equity and debt strategies, has partnered with Minneapolis-based Pipeline Foods to develop sustainable supply chain businesses focused specifically on the certified organic and non-GMO marketplace. Pipeline has rapidly acquired organic soy and corn businesses, converted existing infrastructure such as grain elevators into certified organic facilities, and broken new ground on grain terminals across the Midwest and central Canada.

In other cases, private equity firms are deploying “impact capital” that give investors only limited exposure to regenerative, organic food and agriculture businesses as part of a wider social and environmental impact investing thesis. For example, Vital Farms, one of the leading pasture-raised dairy aggregators focused on products such as eggs and grass-fed butter, received its first institutional investment from two such impact capital managers, SJF Ventures and Arborview Capital. Both firms manage diversified private equity portfolios with exposure to a broader range of environmental and cleantech companies. Recently they joined a group of other leading General Partners, which manage the private equity investment partnerships, to create a new network of “Impact Capital Managers,” managing \$11 billion in combined capital. The group organizes convenings and research on the field, and in their first major research paper, their investment in Vital

43 Adam Putz, “[FoodShot Launches Investment Vehicle to Improve AgTech and Food Systems](#),” Pitchbook, September 2018.

44 Press Release PR Newswire, “[FoodShot Global Announces Winners to First Moonshot Challenge: Innovating Soil 3.0 Hits the Ground Running](#),” June 6, 2019.

45 Emma Cosgrove, “[Blue Hill Farm Owner Launches VC Firm with \\$30m Fund](#),” AgFunder, January 23, 2018.

46 See Todd R. Hansen, “[New Chemical-Free Soil Amendment Firm Sets up in Solano](#),” Daily Republic, May 2018; Jeff Buchanan, “[Midwestern BioAg Raises \\$21 Million to Ramp Up Fertilizer Production](#),” Xconomy, November 2016; and Crunchbase, “[Venture Round – Midwestern BioAg](#).”

47 See Shana Lynch, “[PastureMap: Creating a More Sustainable Steak](#),” Insights by Stanford Business, Stanford University, May 2018; and Crunchbase, “[PastureMap](#).”







Farms provided a case study for how these private equity investors are pursuing “Alpha in Impact,” that is, premium market-rate returns in addition to social and environmental impact.⁴⁸ In essence, regenerative agriculture practices embedded in the value chain of Vital Farms’ business are supporting these investors’ impact strategies, and they viewed the firms’ willingness to maintain long-term contracts

with their suppliers, even after the avian flu outbreak created a challenging context for the company, as part of that impact story. Therefore, “impact capital” is an important potential source of private equity financing for regenerative agriculture value chain enterprises, but the exposure investors get to these sorts of businesses will remain diluted by the more diversified impact investing thesis these investors are pursuing.

48 Bell, Griffith, and Thornley, “Alpha in Impact: How Operating with an Impact Objective Can Add Financial Value for Investors,” Tideline and Impact Capital Managers, December 2018.

FIGURE 21



MECHANISMS, INSTRUMENTS, AND APPROACHES IN PRIVATE EQUITY AND VENTURE CAPITAL

Mechanism, Instruments or Approach	Example	Opportunities for Supporting Regenerative Agriculture	Regenerative Ready
Angel investment	Austin Foodshed and Sustainable Local Food Investment Group platforms for angel investors in local food farms and businesses	Could develop a regenerative food and agriculture thematically organized angel investment platform or investment selection criteria.	
Regulation crowdfunding	Food and agriculture businesses can seek regulation crowdfunding investors on platforms such as Investibule.co, which aggregates together a range of community-based investment opportunities, not exclusive to this sector.	Regenerative agriculture value chain businesses can access private investment using these tools using a targeted platform for regenerative agriculture.	
Small Business Investment Company (SBIC)	In 2012 SJF Ventures organized one of its venture funds as the first Impact Investment SBIC in order to tap US Small Business Administration support for investing in economically disadvantaged areas or certain targeted sectors like education and clean energy.	Regenerative agriculture could become a targeted SBA sector, so that private equity fund managers can organize as SBICs in order to borrow low-cost, government-backed capital to invest in small businesses that are within regenerative value chains.	
Direct Public Offering (DPO)	CuttingEdgeX is a DPO marketplace for social enterprises, including several food cooperatives and other food and agricultural businesses, which launched Direct Public Offerings to raise investment capital.	Make regenerative agriculture investment more accessible to unaccredited investors via DPO structure, and use this more democratized source of capital for financing enterprises along the regenerative agricultural value chain.	
Community Development Venture Capital (CDVC)	CEI Ventures, based in Maine, provides equity venture capital to businesses in underserved rural New England communities, including a limited number of “natural and organic” food companies.	A CDVC fund could provide more intentional exposure to a diversified portfolio of companies along the regenerative agriculture value chain, providing both positive social impact and environmental benefits.	
Leveraged buyout	Pipeline Foods develops sustainable supply chain businesses focused specifically on the certified organic and non-GMO marketplace, and has rapidly acquired organic soy and corn businesses, converted existing infrastructure such as grain elevators into certified organic facilities, and broken new ground on grain terminals across the Midwest and central Canada.	Using leveraged equity investment capital to buyout existing companies, facilities, and operations, and transition to more regenerative, organic models.	

(continued on next page)

FIGURE 21

**MECHANISMS, INSTRUMENTS, AND APPROACHES
IN PRIVATE EQUITY AND VENTURE CAPITAL (CONTINUED)**

Venture capital	Almanac Investments is a \$30 million venture capital fund focused on regenerative agriculture.	Providing equity investment capital to early-stage ventures within the regenerative agriculture value chain.	
Impact covenants and term sheets	The Boston Impact Initiative has embedded impact covenants, akin to a legal loan covenant, specifying the social impact expectations associated with a particular investment. Other impact investors are creating alternative term sheets that specify impact outcomes as part of the investment incentive structure for deals.	Positive outcomes associated with the development of regenerative food and agriculture systems could be written into impact term sheets.	
Value-chain investing	For example, investing in companies developing inputs such as compost and other chemical-free soil amendments, and in AgTech companies involved in data and management to help farmers manage livestock and crops more regeneratively or in soil measurement and other tools that verify regenerative results.	Investing in value-chain businesses around regenerative agriculture needs both patient capital and an adjusting of the return expectations in ways that reflect the production of natural capital.	
Corporate venture capital funds	Patagonia created a \$20 million corporate venture fund called Tin Shed Ventures to invest in early stage companies that are addressing environmental problems, including those related to agriculture.	Other players in the sector could use these kinds of funds with a regenerative agriculture theme in their growth and development.	
Preferred stocks	The parent cooperative of Organic Valley, Farmer-Owned CROPP Cooperative, have been offering Class E, Series 4 Preferred Stock to outside investors beginning in 2018 through May 2020	Purchasing stock directly from privately held companies in regenerative agriculture.	

Artisan bread made from organic, heritage grains. Courtesy of Meadowlark Organics.



FARMLAND AND REAL ASSETS

Real assets, such as farmland, constitute the primary asset class through which regenerative food and agriculture is currently being financed, and understandably so since agricultural land management is central to soil health. We identified 38 real asset investment strategies with \$89.1 billion in assets under management that included sustainable food and agriculture criteria. Of this broader grouping, a majority—29 strategies with \$22.8 billion in combined assets—included some form of regenerative criteria explicitly into their investments, although not all of the underlying assets are managed according to those criteria. Generally, 75 percent of the strategies with

FIGURE 22

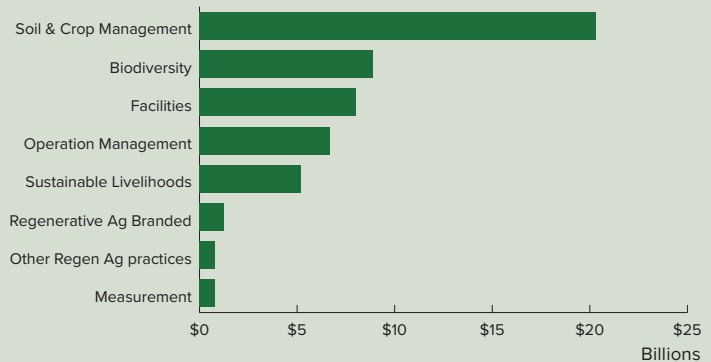
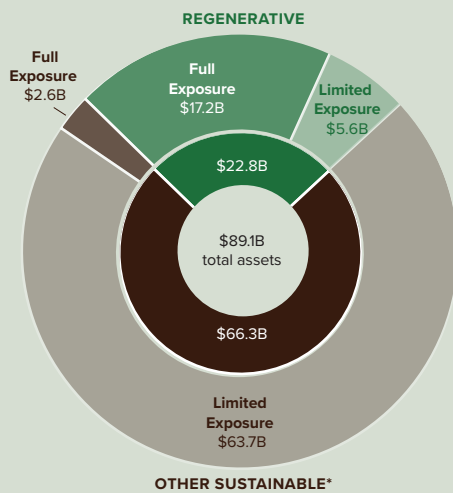
Investing in Regenerative Food and Agriculture with FARMLAND AND REAL ASSETS

SUSTAINABLE 38 Strategies, \$89.1 Billion in Assets
REGENERATIVE 29 Strategies, \$22.8 Billion in Assets

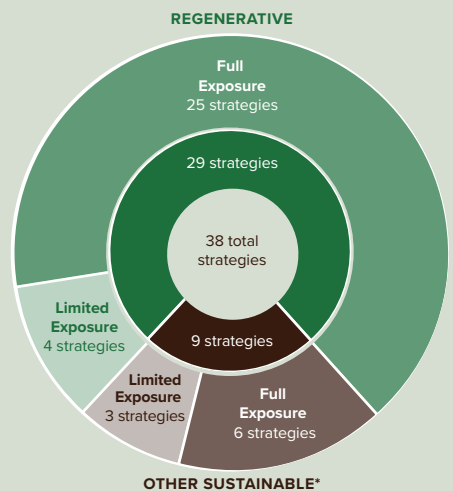
Sustainable Food & Agriculture Investments

Leading Regenerative Criteria Identified

BY ASSETS



BY COUNT



*Sustainable food and agriculture investments, excluding those classified as Regenerative.

Source: Croatan Institute.

regenerative agriculture criteria, with over \$17 billion in combined assets, do give investors full exposure to farmland, with the balance managed by other kinds of firms such as timberland investment management organizations (TIMOs), with some limited exposure to rangelands alongside what primarily are working forestry assets. (Pure TIMOs were not included in the scope of our analysis, although one could consider mindfully managed forestland an important component of regenerative agriculture, particularly in light of the critical role afforestation and reforestation play in carbon dioxide removal strategies.)

As we noted at the outset of this study, a global group of self-described “responsible” farmland investors developed a series of Principles for Responsible Investment in Farmland within the U.N.-backed PRI in 2015. This farmland workstream within the PRI clearly arose in 2011-2012 in the context of charges by numerous civil society organizations and smallholder farming groups that international investors were engaged in agricultural land grabs, because they were making large-scale acquisitions of farmland and timberland often in low- and moderate-income countries with questionable impacts on local communities. The initial case studies on ESG and

sustainable investing within the PRI tended to focus on Dutch pension funds and development banks, the U.K.-based CDC Group, as well as TIAA’s controversial investments in Brazil. Regenerative agriculture was not explicitly among the many ESG or sustainability issues under consideration.

TIAA, which now manages its farmland investments through Nuveen and an affiliated asset manager, Westchester Global Investment Management, is among the leaders of this responsible approach to sustainable farmland investment. TIAA created a series of customized Key Performance Indicators (KPIs) in alignment with the PRI in Farmland, which they publish each year in a farmland sustainability report that covers a highly diversified global farmland portfolio with more than 1.9 million acres in six countries: Australia and New Zealand, Brazil, Chile, Poland, and the U.S. More than 251,000 acres of US farmland are managed through four different investment strategies, including one focused almost exclusively on California vineyards and three others that are globally diversified across multiple countries. TIAA’s KPIs include references to soil health and conservation as part of their environmental sustainability efforts. The KPI for soil health, for

Cover crop stand. Courtesy of Rodale Institute.



example, measures the “Percentage of total acreage with ongoing testing (at least every 4 years) to monitor soil health and assess pH and nutrient levels.”⁴⁹ On this KPI, the firm gave itself a 99.8 percent rating in 2017. “Progress” on soil health is therefore determined based on whether testing occurs on a regular basis, not the actual results of the tests. For an investor seeking to deploy capital into regenerative agriculture, one would naturally want to have KPIs about the results of those tests in addition to whether soil testing occurs.

By contrast, other farmland investment funds are more explicitly seeking exposure to regenerative agriculture. Earlier in our analysis of private debt, we highlighted the case of Iroquois Valley Farmland REIT, which uses Soil Restoration Notes to help finance its broader strategy of transitioning conventional farmland to certified organic operations. As a Real Estate Investment Trust, Iroquois Valley’s main business is farmland acquisitions, and it capitalizes those purchases primarily through the equity shares in the REIT. Rather than operate farms, the firm works closely with farmers to help them transition their operations through the organic

certification process with long-term leases and flexible financing terms. Ultimately, after the transition, these farms will benefit from organic pricing premium, and building soil health is an explicit component of the strategy. Unlike TIAA, which has a multi-billion-dollar globally diversified farmland portfolio, Iroquois Valley manages approximately \$30 million in equity capital in the REIT. Rather than using self-assessed KPIs linked to the PRI in Farmland, it instead focuses on measuring its impact through third-party certification of its farms as organic, and the firm itself is a certified B Corp. Indeed since 2016, Iroquois Valley has been recognized consistently as among the “Best for the World” B Corps, a designation reserved for the top 10 percent of all firms undergoing the B Impact Assessment. B Corp appeals to the firm’s capital base of individual impact investors, family offices, and family foundations, rather than the larger institutional investor base of TIAA. Although both are farmland investors, TIAA and Iroquois Valley seem to inhabit almost parallel universes when it comes to reporting the social and environmental outcomes associated with their investments.

Field of organic soybean crop. Courtesy of Pipeline Foods.



49 Nuveen, “[Farmland Sustainability Report, 2018](#),” 2018.



Selection of winter squash varieties, ready for distribution at Eastern Carolina Organics. Courtesy of Croatan Institute / OARS.

A third example that explicitly embraces regenerative agriculture and pursues it by converting conventional farmland to certified organic operations is San Francisco-based Farmland, LP. Like Iroquois Valley Farmland REIT, Farmland, LP is also a certified B Corp, but with a west coast footprint and approximately \$100 million in AUM through two investment funds. Last year, the firm inaugurated a new impact reporting framework, funded by a USDA Conservation Innovation Grant, that quantified environmental benefits using ecosystem value and GHG accounting models on a field-by-field basis.⁵⁰ Farmland, LP worked with technical assistance providers at Earth Economics and Delta Institute to apply three different modeling frameworks

to create this impact assessment: the Ecosystem Valuation Toolkit, COMET-Farm, and the Revised Universal Soil Loss Equation (RUSLE). The result documented more than \$25 million in net ecosystem service benefits across their two funds in contrast to conventionally farmed models; furthermore, an additional \$58 million in ecosystem value was created on the non-farmed areas of the land where the firm adds value through a wide array of conservation projects and features. The impact report disaggregates these broad figures across a range of variables, including social factors related to impact on surrounding communities, energy and climate factors, soil and water quality, and biodiversity. Although these impacts were quantified using models rather than field data, they do provide a baseline for assessing numerous outcomes associated with regenerative techniques.

Clearly, farmland investors are using a wide array of different indicators and frameworks for reporting on their social and environmental performance, making comparisons among funds difficult to do. B Impact Assessments have general indicators and scores but nothing specific to regenerative agriculture. The PRI for Farmland, although tailor-made for this asset class, also makes no explicit reference to “regenerative” agricultural practices. Engagement with these third-party reporting frameworks could help bring greater consistency to the field, but clearly funds with different kinds of investor bases have elected to go in different directions. Funds like Iroquois Valley, Farmland, LP, Equilibrium Capital, and ranchland manager Beartooth Capital have become certified B Corps, while Agriculture Capital, Lyme Timber (a TIMO that has dabbled in conservation ranchland investment in Colorado), Hancock Agricultural Investment Group, International Farming Corporation, and Nuveen are among signatories to the PRI. Numerous other farmland and real asset funds we have identified within this sustainable and regenerative agriculture field are part of neither community of practice, and several interviewees with whom we spoke described the reporting requirements for both the PRI and the B Impact Assessment as costly, burdensome distractions from tracking what matters most to them. More work could be done to develop frameworks for commonly acknowledged indicators for regenerative agricultural outcomes that would be widely accepted across the field.

50 Farmland, LP, “[Valuing the Ecosystem Service Benefits from Regenerative Agricultural Practices](#),” 2017 Impact Report, 2018. Farmland, LP, is also a formal partner on this project’s Conservation Innovation Grant.



Cows grazing on fresh pasture. Courtesy of Meadowlark Organics.

BOX 2

GOVERNMENT SOURCES OF CATALYTIC CAPITAL FOR INVESTING IN REGENERATIVE AGRICULTURE

Over the past decades, USDA's NRCS has become the largest funder of conservation on private lands. In 2017, NRCS and Encourage Capital released a report with a series of recommendations on how Federal Farm Bill conservation funding might be better used to leverage private capital to drive more conservation and greater investment in rural America. The report focused on how the following four NRCS Farm Bill programs could currently, or with statutory modifications, be used to multiply the impact of NRCS funding: EQIP, the Agricultural Conservation Easements Program (ACEP), the Regional Conservation Partnership Program (RCPP), and the Conservation Innovation Grant (CIG) program. While some conservation practices create positive externalities, those practices may not always deliver an immediate return on private capital (e.g., implementing no till practices or planting cover crops, installing fencing or manure waste structures). However, other practices have more immediately monetizable conservation value, because they generate cost savings such as the implementation of water and energy efficient irrigation practices, or they allow growers to tap into premium pricing models, such as transitioning to organic agriculture.

While not all conservation practices and programs are intrinsically aligned with regenerative agriculture, leveraging federal funds for risk mitigation could nevertheless help attract new private investment into regenerative agriculture. To attract more private investors, particularly impact investors, into conservation finance, Encourage Capital recommends that NRCS, Congress, and USDA stakeholders consider implementing a series of five conditions, presented in Figure 23.

FIGURE 23

CONDITIONS FOR ENGAGING INVESTMENT CAPITAL TO COMPLEMENT NRCS FUNDING









Recommendation	How it Facilitates Investment
Collect, analyze and publish essential data	Provides insight into actual economics of each conservation practice as implemented.
Focus on conservation outcomes	Enables efficient investment approaches using the least amount of capital to achieve the desired conservation outcomes.
Allow a return on investment	Provides investors the ability (not the guarantee) to earn a return on invested capital.
Mitigate risk	Enables investors to engage where they otherwise would not due to uncertainty and unmitigated risk.
Reduce transaction costs	Minimizes the erosion of financial returns due to transaction costs, making more conservation projects investable for private capital.

financed with a blend of public and private capital using an aggregated national pool of EQIP funds and a revolving loan fund structured with private capital, which may require some statutory changes to create.

Similarly, states can develop catalytic support that can complement federal programs or stand alone. For example, California's Healthy Soils Initiative is a collaboration of state agencies and departments, led by the California Department of Food and Agriculture, to promote soil health. One of the actions of the initiative is to "identify sustainable and integrated financing opportunities to facilitate healthy soils." The program offers financial incentives to farmers who implement and demonstrate soil management practices such as cover cropping, no-till, reduced-till, mulching, compost application, and conservation plantings to contribute to building adequate soil organic matter that can increase carbon sequestration and reduce overall greenhouse gases. Many states have also created income tax credits to encourage placing land in conservation easements, some of which are transferrable so that the landowner can capture the full financial value upfront through sale of the credits to other taxpayers. These tax credits are in addition to the federal tax incentives offered for conservation easements.

Another state-focused effort worth noting is the Natural and Working Lands initiative of the U.S. Climate Alliance, a bipartisan coalition of governors committed to reducing greenhouse gas emissions consistent with the goals of the Paris Agreement. The alliance member states are working in partnership with foundations, NGO partners, and experts to develop policies to increase the volume of carbon stored in ecosystems, reduce losses of already-stored carbon, and decrease greenhouse gas emissions. Alliance states will conduct Opportunity Assessments to identify the carbon sequestration and emissions reduction potential of their different land types, and also include economic assessments of implementation potential that can then inform state priorities.

APPROACHES FOR LEVERAGING CATALYTIC FUNDING FOR INCREASING INVESTMENT IN REGENERATIVE AGRICULTURAL PRACTICES

Mechanism, Instruments or Approach	Example	Opportunities for Supporting Regenerative Agriculture	Regenerative Ready
Direct loans	EPA partners with states on Clean Water Revolving Funds	Use direct loans or loan guarantees to fund conservation practices that provide a financial return, freeing up funds. Create a national EQIP-Backed Revolving Loan Fund.	
Conservation bonds	The DC Water Environmental Impact Bond launched in 2016 tied payout to the level of environmental benefits accrued.	Use conservation bonds as an interagency mechanism. For instance, if NRCS got a pool of money from FEMA or USACE to use for conservation to increase infiltration and water storage, less money would be needed to repair infrastructure in other areas because of decreased water volumes.	
Increase participation from investors in NRCS programs	Change eligibility requirements of NRCS programs, by e.g. creating waivers of adjusted gross income (AGI) limitations.	Create new roles for investors within the NRCS programs as recipients of funds as well as providers of funds, you can increase overall investment in conservation practices, with a focus on regenerative.	
Encourage private investment in conservation practices that provide economic returns	For example, investing in transitioning to organic will result in increased profitability of the farm. Currently NRCS funding cannot meet all the needs for EQIP conservation practices, but by bringing in private investment for practices with the potential for private returns, NRCS can shift its resources to practices that do not provide private returns.	Deploy private capital to working lands projects that provide a private financial return so that more public money is available for investments where the public value outstrips the private value and that producers and investors are unlikely to implement without financial incentives, such as riparian buffers and denitrifying bioreactors.	
Loan guarantees	An existing FSA loan guarantee program for conservation projects were \$150 million for in FY 2017 and FY 2018.	Partner with USDA FSA or Rural Development to target loan guarantees at conservation projects and increase implementation.	
Crop insurance	The U.S. Federal Crop Insurance Program (FCIP) provides coverage to help farmers recover from "severe weather and bad years of production."	Redesign the FCIP to recognize the de-risking attributes of regenerative agriculture and incorporate the use of regenerative practices to determine premiums and payouts, creating incentives for conservation and responsible production.	
Technical assistance grants	Through a cooperative agreement, in 2018, NACD and NRCS awarded \$9 million in funding to further enhance conservation district technical assistance across the nation. This included \$9 million for conservation planning and EQIP implementation assistance and \$1 million for NACD to manage the project. A 25 percent match will be required for each agreement.	Develop templates for how to align existing conservation and farmland financing mechanisms, programs, and incentives with these kinds of value-added regenerative agricultural interventions.	
Income tax credits for conservation easements	In 2015 the federal permanent conservation easement tax incentive was passed, giving increased tax incentives for conservation easements. Fourteen states offer Income Tax Credits for conservation. The State of allows the sale of the tax credit to another taxpayer, which can generate immediate income.	By entering regenerative agricultural land into a Conservation Easement, the property value for estate tax purposes can be drastically lowered, and therefore it will allow an additional partial exclusion from the estate tax. In certain cases, a Conservation Easement will also lower property taxes due to the reduced value of the property.	

In terms of mechanisms for financing regenerative agriculture as a real asset, we have stressed the opportunities associated with organic conversions and the implementation of other on-farm management practices that improve soil quality or create ecosystem value through conservation. Given the documented ecosystem value created through regenerative agricultural practices on Farmland, LP's properties, a strong case can now readily be made for aligning existing conservation and farmland financing mechanisms, programs, and incentives with these kinds of value-added regenerative agricultural interventions. For example, in the fixed-income discussion above, we highlighted how land-secured financing districts could be established to provide property owners with upfront capital to implement regenerative programs.

Present-use value property assessment conversions, which sometimes require three years of operating history, could be accelerated for land being placed into regenerative agriculture programs, or credited up-front with verification requirements. Additionally, other USDA programs such as the Agricultural Conservation Easement Program, Conservation Reserve Program, Conservation Stewardship Program, and Environmental Quality Incentives Program (EQIP) could all make regenerative agricultural practices explicitly earmarked for priority consideration in order to ensure they qualify for financial support.

A final opportunity worth mentioning, although still rife with uncertainty, is the newly created structure of Opportunity Zone Funds, a privately pooled investment

Regenerative farmscape at Rodale Institute in Kutztown, PA Courtesy of Rodale Insitute.








vehicle that can shelter capital gains from taxation. Created by the Trump 2017 Tax Cuts and Jobs Act, these Qualified Opportunity Zones are designated economically-distressed districts where these funds can place capital on a tax-deferred basis. Many Opportunity Zones are in rural communities, but it remains unclear whether agricultural land will fully qualify as an acceptable investment. Most opportunity zone funds are targeting real estate development in

urban geographies, but the longer-term tax benefits associated with them could make them well-suited for longer-term agricultural transitions, associated with regenerative, organic conversions. At least three opportunity zone funds have been structured around urban and vertical farming enterprises, and investment firm Harvest Returns has announced the creation of a Sustainable Agriculture Opportunity Fund that is currently open for soft investment commitments.⁵¹

51 The urban farming-focused funds were identified via OpportunityDb, “[Opportunity Zones Funds](#).” See also Harvest Return, “[Sustainable Agriculture Opportunity Zone Fund](#),” and Harvest Returns, “[Opportunity Zone Investments: What Farmers & Investors Need to Know](#),” October 2018.

FIGURE 25


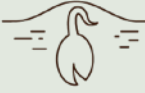
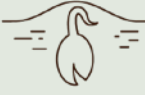




MECHANISMS, INSTRUMENTS, AND APPROACHES IN FARMLAND AS A REAL ASSET CLASS

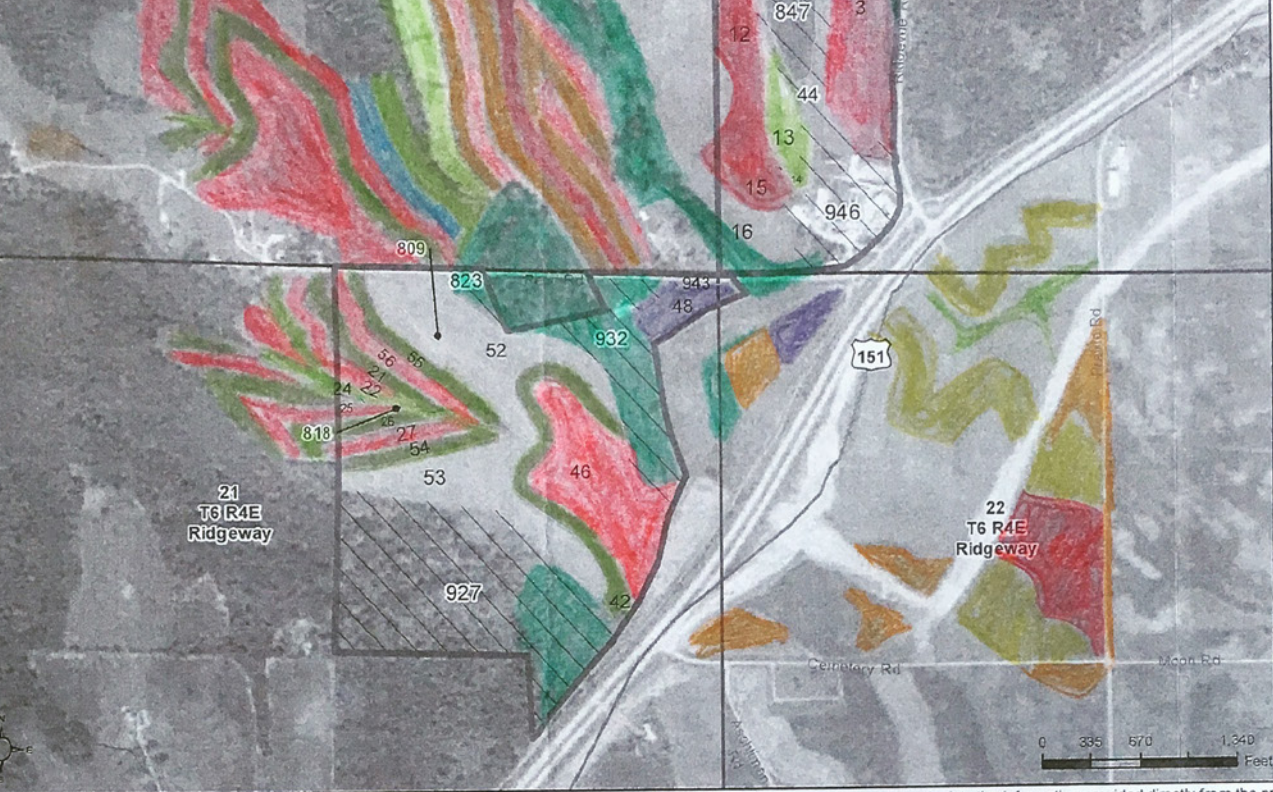
Mechanism, Instruments or Approach	Example	Opportunities for Supporting Regenerative Agriculture	Regenerative Ready
Land-secured financing district	Property Assessed Clean Energy (PACE) financing (See Fixed Income: Public Markets section)	Use this financing model to target regenerative agriculture interventions in rural areas, such as a “soil health improvement district,” allowing property owners within the district to implement improvements without large up-front cash payments.	
Land value assessment	Many tools currently used to value agricultural land, such as the Corn Suitability Rating 2 in Iowa or the high-tech Acrevalue tool from Granular, discount the internal and external benefits of conservation cropping systems.	Land assessors could take soil health into account when appraising the value of the land, which would provide a greater incentive to farmers to invest in soil health and a clearer mechanism for monetizing the financial value of healthy soil.	
Present-use value property assessment	Since 1974, North Carolina offers the Present-Use Value Program, providing an incentive for farmers and foresters to keep agricultural and forested land in those uses through property tax deferments.	Present-use value property assessments could be accelerated for land being placed into regenerative agriculture programs, or credited up-front with verification requirements for regenerative practices.	
New income tax credit	Income tax credit for those who sell land and productive business assets like used equipment or livestock to beginning, socially disadvantaged, or veteran farmers and ranchers, and a separate income tax credit for beginning, socially disadvantaged, and veteran farmers and ranchers who purchase this type of property	Target new income tax credits to new and established farmers transitioning to regenerative and organic.	
Opportunity Zone funds	Harvest Returns’ Sustainable Agriculture Opportunity Fund is currently open for soft investment commitments. The fund’s investment objective is to achieve tax-advantaged capital appreciation in production agricultural projects that are economically, socially, and environmentally sustainable. (Also could apply to Private Equity / Venture Capital)	As part of a rural resiliency strategy, Opportunity Zones could be used to entice investors to invest in businesses along the regenerative agriculture value chain in targeted regions.	

(continued on next page)

FIGURE 25

MECHANISMS, INSTRUMENTS, AND APPROACHES IN FARMLAND AS A REAL ASSET CLASS (CONTINUED)

<p>Long-term lease clauses</p>	<p>A new generation of passive farmland owners are increasingly concerned about the conventional practices used on their family farmland. Leasing clauses with long-term incentives could provide useful frameworks for facilitating a transition of land into better stewardship.</p>	<p>Long-term leases could have explicit regenerative agriculture clauses requiring that tenant farmers use soil-health building practices that do not degrade their land or perhaps to facilitate USDA Organic certification or compliance with conservation programs. These can have purchase options or cost/risk-sharing features.</p>	
<p>Real estate investment trust (REIT)</p>	<p>Iroquois Valley Farmland REIT</p>	<p>Opportunity to provide access to patient capital that allows for the farming system to transition to more regenerative practices on lands included in REITs.</p>	
<p>Measure impact via custom framework or third-party certification</p>	<p>B Impact Assessment, PRI in Farmland, custom Key Performance Indicators (KPIs), such as TIAA's KPIs that have some reference to soil health, Farmland, LPs impact reporting framework that quantifies ecosystem value and GHG accounting, and Environmental Impact Reporting in Agriculture (EIRA)</p>	<p>Develop common frameworks and indicators for regenerative agricultural outcomes to be widely accepted across the field.</p>	
<p>Align existing conservation and farmland financing mechanisms with value-added regenerative interventions</p>	<p>Green Fire Farm in Monticello, Wisconsin, utilized two separate EQIP contracts with the USDA's Natural Resource Conservation Service (NRCS), and additional financial assistance from NRCS by enrolling another part of the farm into the Conservation Stewardship Program.</p>	<p>More efficiently coordinate these kinds of government programs, fragmented across NRCS and the FSA, into a more integrated package for regenerative agriculture because of the demonstrated ecosystem benefits associated with them.</p>	
<p>Agricultural conservation easements</p>	<p>With support from the Great Outdoors Colorado Trust Fund (GOCO), The Palmer Land Trust purchased a conservation easement from the Lyme Forest Fund Fund III in June 2015 in Pueblo, CO. The easement restricts development, but accommodates ongoing ranching activities.</p>	<p>Similar to an easement, a deed restriction limits how the land can be used by the subsequent owner. A deed restriction is easier to create than an easement, but it is not as enforceable and may not offer long-term protection. Regenerative agricultural attributes could be placed into deed restrictions and restrictive covenants.</p>	
<p>Deed restrictions</p>	<p>A restrictive covenant, a type of deed restriction, applies to current and future owners of the land in two or more neighboring properties for their mutual benefit, and these parties are mutually responsible for enforcing the rules of the covenant.</p>	<p>Similar to an easement, a deed restriction limits how the land can be used by the subsequent owner. A deed restriction is easier to create than an easement, but it is not as enforceable and may not offer long-term protection. Regenerative agricultural attributes could be placed into deed restrictions and restrictive covenants.</p>	
<p>Bridge financing for organic and regenerative conversions</p>	<p>California and Austin Foodshed funders have an EQIP Bridge Loan to support farmer and rancher access to the EQIP program. They provide low interest loans to get the money up front and that is then reimbursed when the USDA reimburses the farmer or rancher. (See Private Debt Table)</p>	<p>Make bridge financing readily available to farmers and ranchers seeking to use these programs for regenerative and organic transition.</p>	



13	3.37	HEL	
14	0.32	HEL	
15	2.97	HEL	
16	5.46	HEL	
21	2.64	HEL	
22	1.37	HEL	
24	0.27	HEL	
25	0.63	HEL	
26	1.77	HEL	
27	2.21	HEL	
39	19.94	UHEL	
42	8.25	HEL	
44	7.75	UHEL	
46	14.67	HEL	
48	3.07	HEL	
52	20.63	HEL	
53	7.56	HEL	
54	3.09	HEL	

Page Cropland Total: 160.53 acre
Map Created April 18, 2018

- Common Land Unit**
- Cropland
 - Non-Cropland
 - Tract Boundary
 - PLSS
- NAIP Imagery 2017 Wetland Determination Identifiers**
- Restricted Use
 - Limited Restrictions
 - Exempt from Conservation
 - Compliance Provisions

FSA maps are for FSA Program administration only. This map does not represent a legal survey or reflect actual ownership; rather it depicts the information provided directly from the producer and/or the NAIP imagery. The producer provides the data 'as is' and assumes all risks associated with its use. The USDA Farm Service Agency assumes no responsibility for actual or consequential damage incurred as a result of any user's reliance on this data outside FSA Programs and identifiers do not represent the size, shape, or specific determination of the area. Refer to your original determination (CPA-026 and attached maps) for exact boundaries and determinations or contact NRCS.

■ CORN
 ■ BEANS
 ■ BUCKWHEAT
 ■ FALL CEREAL
 ■ SPRING CEREAL
 ■ PASTURE/GRASS
 ■ ALFALFA

United States Department of Agriculture
Iowa County, Wisconsin

Entire Tract: IR / NI GR / FG unless otherwise labeled
Name/Shares: _____

Farm 10062
Tract 7863
2018 Program Year



CLU	Acres	HEL	Crop
2	6.11	UHEL	
4	8.25	HEL	
5	9.71	HEL	
6	15.31	HEL	
7	2.98	HEL	
12	6.38	HEL	
15	26.89	HEL	
18	18.35	HEL	
19	11.09	HEL	
20	13.57	HEL	
21	2.07	HEL	
22	11.41	HEL	
23	14.41	HEL	
26	2.46	UHEL	
29	9.2	HEL	
31	32.38	UHEL	
34	2.79	UHEL	
35	1.69	UHEL	
37	5.48	HEL	
39	5.65	HEL	
41	47.69	HEL	
799	3.58	UHEL	
846	0.34	UHEL	
850	3.97	UHEL	
851	1.46	UHEL	
856	2.89	UHEL	

Page Cropland Total: 214.55 a

Map Created April 18, 2018

- Common Land Unit**
- Cropland
 - Non-Cropland
 - Tract Boundary
 - PLSS
- NAIP Imagery 2017**

Regenerative agricultural crop planning, highlighting biodiversity on the farm. Courtesy of Meadowlark Organic

CONCLUSIONS AND RECOMMENDATIONS

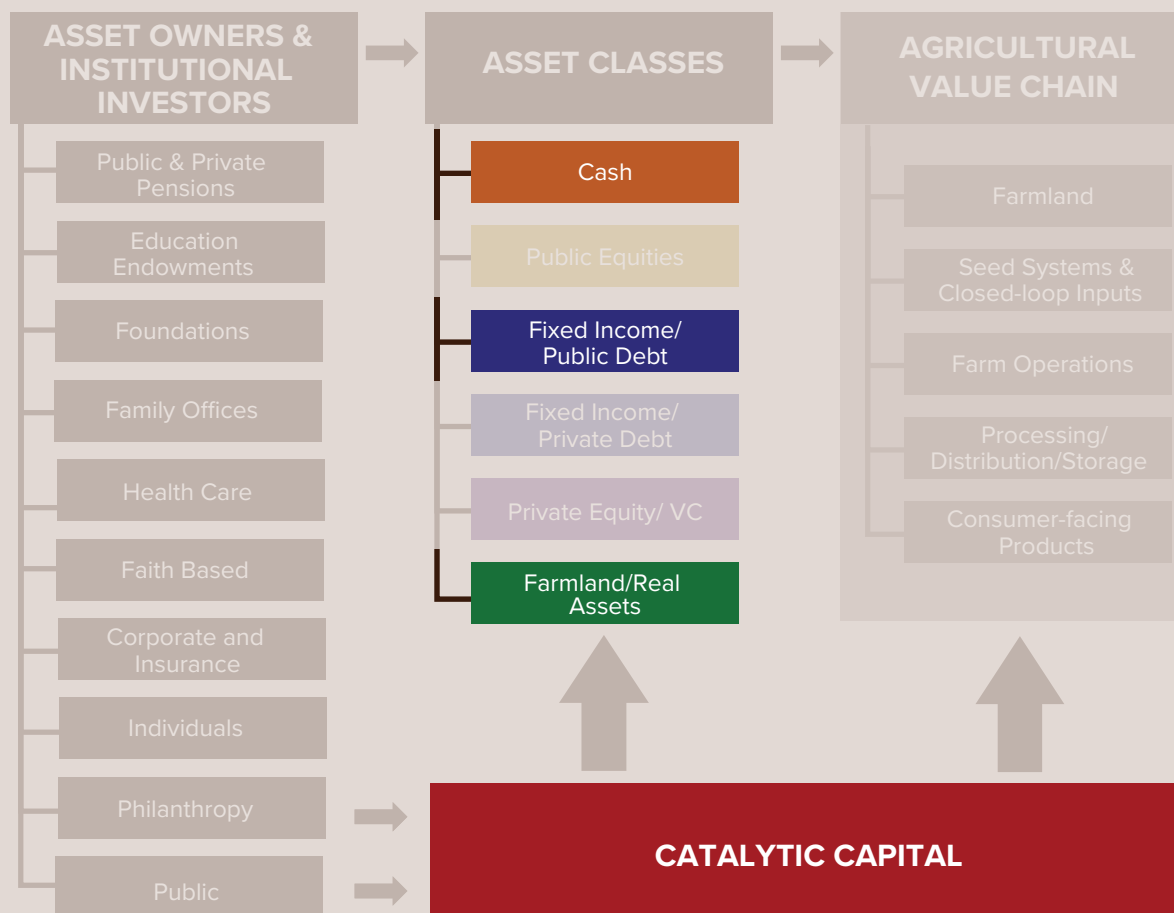
Opportunities to invest in regenerative agriculture in the United States have emerged across asset classes. However, for investors seeking to finance regenerative agriculture through the intermediation of professionally managed investment funds and financial institutions, the opportunity set for gaining fuller investment exposure to regenerative agriculture themes remains primarily in alternative asset classes, generally available only to accredited investors. Real asset investments in land, private equity investments in companies that support regenerative agricultural value chains, and private debt investments in both farms and firms are currently the leading asset classes giving the fullest expression to regenerative agriculture as an investment theme. While opportunities are growing in conventional asset classes such as cash, public equities, and fixed-income investing in public markets, they remain far more limited in scope.

The mechanisms, instruments, and approaches being used to mobilize capital within each asset class and across asset classes are at varying stages of maturation, creating a fertile terrain for expansion and experimentation. We recommend deepening regenerative agriculture features of financing within the most developed alternative asset classes and broadening the use of regenerative themes as ESG criteria for investment research, analysis, decision-making, and engagement in public markets. Specifically, we view farmland, cash, and fixed income as asset classes ripest for rapid development in part because bank financing remains the leading form of financing farms and businesses in rural communities.

Farmland naturally provides the most direct way to enable regenerative agriculture in the field, but the potential role of public fixed-income investing in providing liquidity to the mission-aligned banking

We view farmland, cash, and fixed income as asset classes ripest for rapid development in part because bank financing remains the leading form of financing farms and businesses in rural communities

PRIORITY AREAS FOR INCREASING INVESTMENT INTO REGENERATIVE AGRICULTURAL VALUE CHAINS



Source: Croatan Institute.

sector, both to private banks and for the government-sponsored Farm Credit System, also cannot be underestimated.

Specifically, within real assets farmland funds need to integrate regenerative agriculture features much more deeply, with a focus on soil health outcomes and ecosystem services. Impact measurement needs to become far more robust, and we view initiatives such as the Environmental Impact Reporting in Agriculture (EIRA) initiative as important platforms for engaging in that effort, building upon the leading practices identified earlier in our discussion. A stronger accountability ecosystem also needs to emerge to monitor farmland investment funds for weak or misleading indicators that do not align with regenerative outcomes.

In public-market, fixed-income investing we see considerable opportunities to engage with bond issuers and bond buyers to embed regenerative agricultural features in publicly traded debt securities, particularly within GSEs such as Farm Credit and Farmer Mac. Green bonds or climate bonds with strong regenerative agriculture criteria are long overdue, and we also see opportunities to extend the application of other structures from the clean energy bond finance arena, such as PACE-style land-secured assessment financing, to stimulate new clustered, place-based investment in Regenerative Organic Agriculture Districts. The primary beneficiaries of bond financing could be the underlying borrowers at banks and depository institutions, especially CDFIs and non-CDFI rural and community banks that have an opportunity to differentiate themselves further from Farm Credit lending institutions, which may prove slower to

*...within real assets
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much more deeply,
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health outcomes and
ecosystem services*

move. Rural and community development banks and credit unions can develop targeted lending and financial services to farms and businesses within the regenerative agricultural value chain as well as depository products for investors seeking exposure to regenerative agriculture.

Ultimately, though, our interest is in fostering diversified, total portfolio approaches to investing in regenerative agriculture across asset classes. As such, we also recommend continuing to work with a secondary focus on equity investment, both public and private, and on private debt, where some of the greatest experimentation has already occurred, though at limited scale. Given the demonstrable social and environmental benefits associated with regenerative agriculture, we also strongly recommend greater blending of private investment with catalytic sources of capital from philanthropy and government, at multiple levels, using frameworks such as Integrated Capital that would expand the reach of regenerative agriculture. In addition to the actions that investors working within specific asset classes can take, various stakeholders have critical roles to play in this process of expansion.

Generally, asset owners, their consultants and advisers, and asset managers can begin gathering more often in groups such as the Regenerative Agriculture Investor Network (RAIN) and the upcoming Regenerative Food System Investment Forum.

Philanthropic foundations are uniquely positioned to advance this emerging field by integrating grantmaking, catalytic program-related investments, and endowment management using total portfolio activation across asset classes. Foundations can find peers and allies in affinity groups such as the AgroEcology Fund, Confluence Philanthropy, the Global Alliance for the Future of Food, Mission Investors Exchange, and Sustainable Agriculture and Food System Funders. Through these networks, foundations have substantial convening power they can deploy to advance development of this field. They can commission further research and provide valuable matching funds to leverage public funds from programs such as NRCS Conservation Innovation Grants.

Policymakers and public officials can begin integrating regenerative agriculture considerations and criteria more deeply into existing agriculture conservation finance programs and experiment with concepts such as Regenerative Organic Agriculture Districts. They can demand greater accountability for soil health improvements from farmers taking advantage of state and federal programs or borrowers obtaining loans from the Farm Credit System. As the 2018 Farm Bill continues to be implemented, far-sighted policymakers can begin designing catalytic capital allocations for regenerative agriculture in the next Farm Bill, which will likely be drafted and enacted in 2022-2023.

Slow Money investors can extend the radius of their investments and prioritize loans and deals that help finance regenerative operations, not just local ones.

Finally, regenerative agriculture practitioners need outlets for communicating to the investment community their financing needs, which will vary greatly depending on scale, corporate form, and location. Ultimately, farmers and agricultural entrepreneurs are doing the demanding day-to-day work of building Soil Wealth. Only by partnering with them will investors succeed in stimulating the kinds of positive social and environmental benefits and impacts that the promise of regenerative agriculture holds.

BIBLIOGRAPHY

- AlphaBet. [“Valuing the SDG Prize in Food and Agriculture: Unlocking Business Opportunities to Accelerate Sustainable and Inclusive Growth.”](#) Business and Sustainable Development Commission, October 2016.
- Anzilotti, Eillie. [“Regenerative Organic Certification Wants to Be the Ethical Standard to Rule Them All.”](#) Fast Company, March 14, 2018.
- Astone, Jennifer. [“Investing in Food Systems: Gaps in Capital, Analysis and Leadership.”](#) Swift Foundation, March 2018.
- Astone, Jennifer, and Tim Crosby. [“Transforming Food Systems: The Power of Integrating Grant and Investment Capital.”](#) AgroEcology Fund and Global Alliance for the Future of Food, January 2019.
- Berezin, Valerie, Lisa Hagerman, and David Wood. [“Cash as a Mission-Related Investment.”](#) Initiative for Responsible Investment, Harvard University, February 2011.
- BenDor, Todd, et al. [“Estimating the Size and Impact of the Ecological Restoration Economy.”](#) PLoS ONE 10, no. 6, June 17, 2015.
- Blum, Jon. [“Biodynamics: Where Regenerative Agriculture Meets Regenerative Capital.”](#) TriplePundit, January 2018.
- Breakthrough Strategies & Solutions. [“Sequestering Carbon in Soil: Addressing the Climate Threat.”](#) Summary Report from Conference Chantilly, France, May 3-5, 2017.
- Climate Bonds Initiative and SITAWI. [“Can Green Bonds Finance Brazil’s Agriculture?”](#) November 2018.
- Cocciarelli, Susan. [“Financing Farming in the US: Nine Case Studies of Community Development Financial Institution Lending in the Farm Production Sector.”](#) Center for Regional Food Systems, Michigan State University, September 2013.
- Codur, Anne-Marie, and Josephine Watson. [“Climate-Smart Agriculture or Regenerative Agriculture? Defining Climate Policies Based on Soil Health.”](#) Climate Policy Brief no. 9. Global Development and Environment Institute, Tufts University, April 2018.
- Council of Development Finance Agencies. [“Food Systems & Development Finance.”](#) n.d., Accessed January 31, 2018.
- Crampton, Liz. [“Regenerative Ag as the Next BIG Thing.”](#) Politico, March 13, 2018.
- Danaher, Kate. [“Arkansas Co-op Shifts Status Quo in Livestock Farming.”](#) RSF Social Finance, November 2017.
- Dumont, Andrew, et al., eds. [“Harvesting Opportunity: The Power of Regional Food System Investments to Transform Communities.”](#) Federal Reserve Bank of St. Louis and Board of Governors of the Federal Reserve System, 2017.
- DuPlessis, Jim. [“Maine Harvest Credit Union to Open in 2019.”](#) Credit Union Times, October 2018.
- Encourage Capital. [“NRCS and Investment Capital: Investing in America Together.”](#) September 2017.
- Equilibrium. [“Equilibrium’s Perspective on Agriculture & Food.”](#) April 2018.
- FAIRR Initiative. [“Factory Farming: Assessing Investment Risks.”](#) 2016.
- Food and Agriculture Organization of the United Nations (FAO). [“The Future of Food and Agriculture: Alternative Pathways to 2050.”](#) Rome, 2018.
- FAO. [“The Future of Food and Agriculture: Trends and Challenges.”](#) Rome, 2017.
- Fullerton, John, [“Regenerative Capitalism: How Universal Principles and Patterns Will Shape Our New Economy,”](#) Capital Institute, April 2015.
- Gough, Tivoli. [“Green Fire Farm Lives Regenerative Agriculture: Mimicking Nature to Create a Pasture of the Future.”](#) NRCS, [n.d.].
- Greenaway, Twilight. [“Carbon Farming Works. Can It Scale up in Time to Make a Difference?”](#) Civil Eats, June 12, 2018.
- Hansen, Todd R. [“New Chemical-Free Soil Amendment Firm Sets up in Solano.”](#) Daily Republic, May 2018.
- Harrington, Bill. [“Can Green Bonds Flourish in a Complex-Finance Brownfield?”](#) Croatan Institute Working Paper, July 2018.
- Harris, Gray, and Denise Dukette. [“How to Effectively Underwrite Small and Emerging Farms.”](#) CDFI Fund and Opportunity Finance Network, June 2012.
- Humphreys, Joshua, Ann Solomon, and Christi Electris. [“Total Portfolio Activation: A Framework for Creating Social and Environmental Impact across Asset Classes.”](#) Tellus Institute, Tides, and Trillium Asset Management, August 2012.
- Humphreys, Joshua, et al. [“What Investors Want: How to Scale Up Demand for U.S. Clean Energy and Green Bonds.”](#) Croatan Institute and Clean Energy Group, December 2014.
- Janiec, Chris. [“Exclusive: Farmland LP Tallies Regenerative Impact.”](#) Agri Investor, September 18, 2018.
- Lambert, Mark, et al. [“Valuing the Ecosystem Service Benefits from Regenerative Agriculture Practices.”](#) Farmland LP 2017 Impact Report, September 2018.
- Lang, Kristin, Joshua Humphreys, and Andreea Rodinciuc. [“Impact Investing in Sustainable Food and Agriculture across Asset Classes: Financing Resilient Value Chains through Total Portfolio Activation.”](#) Croatan Institute and Trillium Asset Management, May 2017.
- Lynch, Shana. [“PastureMap Brings a High-Tech Approach to Sustainable Grazing.”](#) Civil Eats, June 8, 2018.
- Marcario, Rose. [“Regenerative Organics: Drawing a Line in the Sand.”](#) The Cleanest Line, Patagonia, December 8, 2016.
- Masson-Delmotte, Valérie, et al., eds. [“Global Warming of 1.5°C: Summary for Policymakers.”](#) Intergovernmental Panel on Climate Change, 2018.

- McKenzie, Jessica. [“Carbon Farming Isn’t Worth It for Farmers. Two Blockchain Companies Want to Change That.”](#) New Food Economy, June 4, 2018.
- Moss, Daniel, and Mark Bittman. [“Bringing Farming Back to Nature.”](#) The New York Times, June 26, 2018.
- Murray, Lucyann, and Meaghan McGrath. [“Sustainable Farmland Investment Strategies: An Introduction to Current Conditions.”](#) Yale School of Management & Yale School of Forestry and Environmental Studies, November 2016.
- Natural Resource Conservation Service, [“Principles for High Functioning Soils,”](#) USDA, February 2018.
- Negra, Christine, et al. [“Environmental Impact Reporting in Agriculture \(EIRA\): Creating a Link between Agricultural Investments and Environmental Impact.”](#) Clarmondial, Wageningen University & Research, and Versant Vision, April 2019.
- The New Climate Economy. [“Section Three: Food and Land Use.”](#) The 2018 Report of the Global Commission on the Economy and Climate, 2018.
- Nuveen. [“Farmland Sustainability Report, 2018.”](#) 2018.
- Parker, Charlotte. [“Why the Keyword in Farming Startups is ‘Regenerative.’”](#) Ozy, June 29, 2015.
- Pineiro, Aliana, Hannah Dithrich, and Arti Dhar. [“Financing the Sustainable Development Goals: Impact Investing in Action.”](#) Global Impact Investing Network, September 2018.
- Principles for Responsible Investment (PRI). [“Responsible Investment in Farmland.”](#) July 2015.
- PRI. [“The SDG Investment Case.”](#) October 2017.
- Regenerative Agriculture Initiative, CSU Chico, and the Carbon Underground. [“What Is Regenerative Agriculture?”](#) February 2017.
- Richman, Nessa, and Patty Cantrell. [“A New Ally for Sustainable Agriculture in the Finance Department.”](#) National Sustainable Agriculture Coalition, February 2012.
- Rittner, Toby, Allison Rowland, and Ariel Miller. [“Food Systems & Access to Capital.”](#) CDFA Food Finance White Paper Series, April 2019.
- Rittner, Toby, Allison Rowland, and Ariel Miller. [“Food Systems & Development Finance.”](#) CDFA Food Finance White Paper Series, February 2019.
- Rodale Institute. [“Regenerative Organic Agriculture and Climate Change: A Down-to-Earth Solution to Global Warming.”](#) 2014.
- Secon, Holly. [“Soil Becomes a Fertile Ground for Climate Action.”](#) GreenBiz, February 25, 2019.
- Shemkus, Sarah. [“Activists Take the Fight for Fair Food to Shareholder Meetings.”](#) Civil Eats, April 9, 2018.
- Slow Money. [“State of the Sector Report 2014: Investing in Small Food Enterprises.”](#) 2014.
- Soloviev, Ethan R. [“Financing Regenerative Agriculture.”](#) Re-Source, April 2018.
- Soloviev, Ethan R. [“Lineages of Regenerative Agriculture.”](#) Re-Source, December 2018.
- Soloviev, Ethan R. and Gregory Landua. [“Levels of Regenerative Agriculture.”](#) Terra Genesis International, September 2016.
- Stern, Nicholas. [“We Must Reduce Greenhouse gas Emissions to Net zero or Face More Floods.”](#) The Guardian, October 7, 2018.
- Tasch, Woody. SOIL: Notes towards the Theory and Practice of Nurture Capital. Slow Money Institute, 2017.
- Tasch, Woody. Inquiries into the Nature of Slow Money: Investing as if Food, Farms, and Fertility Mattered. White River Junction, Vt.: Chelsea Green, 2010.
- Taylor, Betsy. [“Healthy Soils to Cool the Planet—A Philanthropic Action Guide.”](#) Breakthrough Strategies & Solutions, February 2019.
- Timperley, Jocelyn. [“COP23: Key Outcomes Agreed at the UN Climate Talks in Bonn.”](#) CarbonBrief, November 19, 2017.
- Toensmeier, Eric. The Carbon Farming Solution: A Global Toolkit of Perennial Crops and Regenerative Agriculture Practices for Climate Change Mitigation and Food Security. White River Junction, Vt.: Chelsea Green, 2016.
- United States Small Business Administration, Office of Inspector General. [“Evaluation of SBA7\(A\) Loans Made to Poultry Farmers.”](#) Evaluation Report Number 18-13, March 6, 2018.
- US SIF Foundation. [“Report on US Sustainable, Responsible, and Impact Investing Trends.”](#) Washington, D.C., October 2018.
- Velasquez-Manoff, Moises. [“Can Dirt Save the Earth?”](#) The New York Times Magazine, April 18, 2018.
- Vitón, Roberto, ed. [“2018 Global Food and Agriculture Investment Outlook: Investing Profitably whilst Fostering a Better Agriculture.”](#) Valoral Advisors, January 9, 2018.
- Vitón, Roberto. [“Green Bonds: A New Financing Tool to Foster a More Sustainable Agriculture.”](#) Global AgInvesting, December 2017.
- Weisberg, Peter. [“Scaling Regenerative Agriculture.”](#) The Climate Trust, April 2018.
- Whelpton, Leigh, and Andrea Ferri. [“Private Capital for Working Lands Conservation: A Market Development Framework.”](#) The Conservation Finance Network, April 2017.
- Woodward, Joshua D., Bruce Sherrick, Jonathan Coppess and Dave Muth Jr., [“The Role of the Banking and Financing Sector in Encouraging Conservation Practices and Organic Transitions.”](#) Meridian Institute, March 26, 2019.
- Wrangler. [“Seeding Soil’s Potential: Building Soil Health in Cotton Production to Maximize Environmental and Economic Value.”](#) Wrangler Science and Conservation Series, vol. 1, April 2018.

APPENDIX A:

US INVESTABLE STRATEGIES WITH REGENERATIVE AGRICULTURE CRITERIA

CASH AND CASH EQUIVALENTS

FIRM / ASSET MANAGER	PRODUCT NAME	DESCRIPTION
Amalgamated Bank	New Resource Bank Impact CD	Organic food businesses are targeted among the impact themes in this CD. This product was part of the acquisition of New Resource Bank by Amalgamated Bank.
Beneficial State Bank	PositiveChange Accounts	No specific product, but the bank is a strong supporter of regenerative agriculture and lends explicitly to downstream businesses in the sustainable food and agriculture value chain.
Eastern Bank	Eastern Bank Equal Exchange CD	Eastern Bank has partnered with Equal Exchange Co-op, a Fair Trade coffee, tea and chocolate merchant to offer a special 3-year CD.
Maine Harvest Credit Union	N/A	Maine Harvest Credit Project is working to create a specialized credit union focused on the small farms and new food economy in Maine. The founders believe such a credit union will fill critical financing gaps facing this sector, particularly around financing the acquisition of land and specialized food processing and agricultural equipment.
Self-Help Credit Union	Green Term Certificate	Self-Help Credit Union offers a Certificate of Deposit that underwrites eco-friendly businesses that support sustainable food systems, include certified organic food hub businesses and cooperative food retailers.

FIXED INCOME: PUBLIC MARKETS

FIRM / ASSET MANAGER	PRODUCT NAME	DESCRIPTION
Calvert Investments	Fixed Income strategies	Calvert is a diversified family of responsibly invested mutual funds incorporating actively and passively managed strategies, US and international equity strategies, fixed-income strategies and asset allocation funds. All of their funds adhere to the Calvert Principles for Responsible Investment, which make explicit reference to protecting the interests of organic farmers.
Janus Capital	The Organics ETF	The Organics ETF seeks exposure to companies globally that can capitalize on consumer's increasing desire for naturally-derived food and personal care items, including companies that service, produce, distribute, market or sell organic food, beverage, cosmetics, supplements, or packaging.
Trillium Asset Management	Fixed Income strategies	Trillium Asset Management is an employee-owned investment management firm that integrates Environmental, Social, and Governance (ESG) factors into its investment process as a way to identify the companies best positioned to deliver strong long-term performance. Trillium approaches food and agriculture investment by focusing on companies participating in the natural and organic space, and has engaged with public companies on a number of issues around the food supply chain.

FIXED INCOME: PRIVATE DEBT MARKETS

FIRM / ASSET MANAGER	PRODUCT NAME	DESCRIPTION
AMERRA Capital Management	Private Debt Strategies	AMERRA is a private, alternative asset management firm providing strategic capital to upstream and midstream agri-business operating companies in the Americas and western Europe. AMERRA includes a focus on ESG, which positively affects the long-term financial performance of its investment portfolio while also driving social profitability for all stakeholders.
Calvert Impact Capital	Community Investment Note	Calvert Impact Capital's Community Investment Note is a fixed income product that invests in a global portfolio of intermediaries and funds that finance mission-driven organizations. It blends financial, social, and environmental returns into one accessible product.
Cooperative Fund of New England	Social Investment Loan Product	The Cooperative Fund of New England has provided over \$50.4 million in crucial, affordable financing to cooperatives and nonprofits across New England and eastern New York State.
Fresh Source Capital	Fresh Source Capital Fund 1 Fresh Source Capital Fund 2	Fresh Source Capital invests in companies whose products, services and technologies provide "better" food to consumers and institution, focusing on seed and growth stage companies based in North America, using both equity and structured exit instruments such as subordinated debt and royalty financing.
Iroquois Valley Farmland REIT	Soil Restoration Notes	Soil Restoration Notes allow investors to use their short-term funds to create long-term impact, with the added benefit of direct financial impact on organic farmers currently transitioning their soil to organic.
Natural Capital Investment Fund (NCIF)	Natural Capital Investment Fund	Natural Capital Investment Fund is a small business loan fund that supports entrepreneurs who are creating jobs and businesses in underserved communities in central Appalachia and the Southeast.
New Hampshire Community Loan Fund	Farm Food Fund	Investments in the New Hampshire Community Loan Fund are stable, pay interest to the investor and create opportunity many times over in New Hampshire's communities. The Farm Food Fund attracts gifts and investments that enable the Community Loan Fund to deliver the loans and customized education that farms, fisheries and food producers need to grow and build the local food system.
Pioneer Valley Grows	Pioneer Valley Grows Investment Fund (PVGIF)	The PVGrows Investment Fund, Inc. provides financing and technical assistance to farm and food businesses through community investments in the Pioneer Valley of central Massachusetts.
RSF Social Finance	Food System Transformation Fund	The Food System Transformation Fund offers an easy way for foundations to leverage their philanthropic dollars by making a PRI loan to RSF. The capital is lent to enterprises working to build local food systems, an attractive arrangement for organizations that lack the resources or prefer not to source, underwrite, service and monitor loans.
RSF Social Finance	Social Investment Fund	With RSF's Social Investment Fund Note, investors support positive social and ecological impact while earning a financial return. The Note supports social enterprises through RSF's loan program.
Self-Help Ventures Fund	Self-Help Ventures Fund	The Ventures Fund is a nonprofit 501(c)(3) loan fund capitalized with loans and grants from foundations, religious organizations, corporations and government sources. It manages Self-Help's higher-risk business loans, real estate development and home loan secondary market programs.
The Carrot Project	Maine Farm Business Loan Fund	The Maine Farm Business Loan Fund is a collaboration between Maine's Coastal Enterprises, Inc. (CEI) — a statewide, non-profit community development financial institution — and The Carrot Project. The fund was established to meet the financing needs of small and mid-sized farm and food enterprises that use sustainable practices and serve local and regional markets in this growing sector of Maine's economy.
The Carrot Project	Greater Berkshire Agriculture Fund	Working with a community bank, Salisbury Bank & Trust Company, the Greater Berkshire Agriculture Fund finances flexible loans up to \$75,000 for farmers and entrepreneurs in a four-county, multi-state geography in the Hudson Valley of New York, northwest Connecticut, and western Massachusetts, and explicitly targets small and mid-sized farms and food system enterprises using sustainable or organic practices or products.
The Carrot Project	Massachusetts Farm and Food Loan Fund	Administered in partnership with the Franklin County Community Development Corporation, an economic development nonprofit organization, the loan fund focuses on small and mid-sized farms and food system enterprises using sustainable or organic practices, including those engaged in the processing, storage, or distribution of agricultural products.

Vermont Community Loan Fund	Food, Farms & Forests Fund	The Food, Farms & Forests Fund consolidates, grows and sustains the capital and supporting services that VCLF makes available to meet the needs of small farms, food producers, and the working landscape throughout Vermont.
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PUBLIC EQUITY

FIRM / ASSET MANAGER	PRODUCT NAME	DESCRIPTION
Calvert Investments	Multiple Public Equity strategies	Calvert is a diversified family of responsibly invested mutual funds incorporating actively and passively managed strategies, US and international equity strategies, fixed-income strategies and asset allocation funds. All of their funds adhere to the Calvert Principles for Responsible Investment, which make explicit reference to protecting the interests of organic farmers.
Trillium Asset Management	Multiple Public Equity strategies	Trillium Asset Management is an employee-owned investment management firm that integrates Environmental, Social, and Governance (ESG) factors into its investment process as a way to identify the companies best positioned to deliver strong long-term performance. Trillium approaches food and agriculture investment by focusing on companies participating in the natural and organic space, and has engaged with public companies on a number of issues around the food supply chain.

PRIVATE EQUITY / VENTURE CAPITAL

FIRM / ASSET MANAGER	PRODUCT NAME	DESCRIPTION
1st Course Capital	1st Course Capital	1st Course Capital is a seed VC raising capital that includes regenerative agriculture among its targeted food business themes.
Almanac Investments	Almanac Investments	Almanac makes early-stage investments and serves as an operational partner for a limited number of “next generation” companies. It is committed to being a positive force in the broader food ecosystem.
AMERRA Capital Management	Private Equity Strategies	AMERRA is a private, alternative asset management firm providing strategic capital to upstream and midstream agri-business operating companies in the Americas and western Europe. AMERRA includes a focus on ESG, which positively affects the long-term financial performance of its investment portfolio while also driving social profitability for all stakeholders.
Arborview Capital	Arborview Capital Partners LP Arborview Capital Partners II LP	Arborview Capital Partners portfolio companies create significant value across critical missions such as water conservation, sustainable food production, health and wellness, and energy efficiency. In addition, its companies strive to create benefits for all stakeholders including customers, employees, vendors, communities, the environment, and shareholders.
Fair Food Network	Fair Food Fund	Fair Food Fund provides financing & business assistance to good food enterprises that are growing vibrant local food systems. A nonprofit financing vehicle, it has received below-market-rate Program-Related Investments in the past, but is not otherwise open to external investors.
Fifth Season Ventures	FSV Opportunity Fund II LP	Fifth Season Ventures invests early stage venture capital into technologies driving circularity between materials, design, processes, and waste.
Fresh Source Capital	Fresh Source Capital Fund 1 Fresh Source Capital Fund 2	Fresh Source Capital invests in companies whose products, services and technologies provide “better” food to consumers and institutions. They focus on seed and growth stage companies based in North America, and their investments include equity and structured exit instruments such as subordinated debt and royalty financing.
Renewal Funds	Renewal2 Renewal3 Renewal4	Renewal Funds is a mission venture capital firm investing in early growth stage companies in Canada and the United States.

rePlant Capital	rePlant Capital	rePlant Capital is an impact investment firm replanting integrated capital from soil to shelf.
S2G Ventures	S2G Ventures	S2G Ventures (Seed 2 Growth) is a multi-stage food and agriculture venture fund investing in entrepreneurs whose products and services meet the shifting demands for healthy and sustainable food. S2G looks for companies that can take leadership positions in emerging and fast growing markets in the food and agriculture sector, and makes investments spanning the entire food supply chain from “soil to shelf.”
Sail Ventures	&Green Fund	Sail Ventures invests in agriculture production value chains in order to protect and restore tropical forests and peatlands and make agriculture more inclusive and sustainable. They provide purpose-built capital for the sustainable intensification of agriculture production systems and business models that reduce deforestation.
Silver Creek Capital Management	[multiple strategies]	Silver Creek believes that sustainable agricultural practices are a critical component to the solution of one of the world’s most pressing issues, climate change.

REAL ASSETS

FIRM / ASSET MANAGER	PRODUCT NAME	DESCRIPTION
Agriculture Capital	Agriculture Capital Permanent Crop Fund 1 Agriculture Capital Permanent Crop Fund 2 Agriculture Capital Permanent Crop Fund 3	Agriculture Capital is focused on bringing needed scale to regenerative food production. They deploy capital in healthy food investments that are customer-driven, appropriately scaled, vertically integrated, and differentiated through sustainability.
Beartooth Capital Partners	Beartooth Capital I, LP Beartooth Capital II, LP Beartooth Capital III, LP	Beartooth Capital Partners purchases and restores environmentally distressed land in the Western United States.
Chess Ag Full Harvest Partners	[Multiple strategies]	Chess Ag Full Harvest Partners is an asset management company focused on agricultural investment opportunities. The firm examines both micro and macro global trends and focuses on increasing consumer demand for healthy food, protein, and higher quality global diets.
Dirt Capital Partners	Dirt Capital Partners 2016 LLC Dirt Capital Partners LLC	Dirt Capital Partners invests in farmland in partnership with farmers throughout the Northeast United States, promoting sustainable farmers’ land access and security.
Equilibrium Capital Group	[Multiple strategies]	Equilibrium Capital builds proprietary sustainable real asset strategies in food and agriculture, renewable resources, and sustainable real estate. It has invested in numerous platforms with regenerative features, including Agriculture Capital, Bio-Logical Capital, and Australia Pastoral Fund Management. Other food and agriculture initiatives include a Controlled Environment Food Fund that embraces sustainability but not regenerative practices.
Farmland LP	Vital Farmland REIT (Fund II)	Vital Farmland REIT, LLC (Fund II), was formed to invest in US agricultural assets and pursue a value-added strategy of converting conventional farmland into organic farmland.
Farmland LP	Vital Farmland LP (Fund I)	Vital Farmland LP seeks to generate competitive financial returns while providing positive environmental and social impact. It focuses on buying farmland in the US in regions that are proximate to markets with strong demand for locally grown, organic food; have a strong, existing farming community; and favorable climate projections.
Grasslands, LLC	Grasslands, LLC	Affiliated with the Savory Institute, Grasslands LLC focuses on ecological regeneration of degraded grasslands using the Holistic Planned Grazing approach, focusing on the Northern Great Planes in the US, and New Zealand’s South Island. Their mission includes restoring biodiversity and soil organic matter to degraded grasslands and creating economic opportunities in rural communities.
Iroquois Valley Farmland REIT	Direct Public Offering	The DPO offers all investors the opportunity to invest in a diversified portfolio of organic farmland. Investing in Iroquois Valley Farmland REIT supports healthy food production, environmental stewardship, and prosperity for independent farmers and their communities.

Iroquois Valley Farmland REIT	REIT Shares	Iroquois Valley Farmland REIT Equity Shares support the company's mission to offer land access to independent organic farmers on generational terms.
LandFund Partners	Fund IV	LandFund Partner's Fund IV invests in premier organic operators across the country to help navigate the transition from conventional to organic.
The Lyme Timber Company LP	The Lyme Forest Fund Fund III	The Lyme Forest Fund Fund III creates value through conservation sales and operational restructuring. Fund III returned capital through sale of conservation easement on 25,000 acre cattle ranch; it is currently investing in ranch infrastructure in preparation for sale.
Manulife Asset Management	Hancock Agricultural Investment Group	Hancock Agricultural Investment Group's investment philosophy is to build diversified global agricultural investment portfolios customized to meet specific investor requirements, with a commitment to conserve soil, air, and water quality; biological diversity; wildlife habitats; and participation in vibrant, healthy communities.
New Spirit Farmland Partnership	Monarch Farm Project	Monarch Farms is a joint project of New Spirit Farmland Partnerships and a group of social impact investors concerned with restoring the health of our ecosystems.
Northeast Farm Access	Northeast Farm Access	Northeast Farm Access brings together farmers, social investors and local allies, especially conservation land trusts, to revive and transform sustainable agriculture—yielding both abundant clean, local food and a new generation of organic farmers. Their projects create long-term access to farmland and food while also growing farmer and investor equity. With investor support, they buy land, transition it to organic, and lease it long-term and affordably to experienced farmers.
Nuveen, A TIAA Company	Nuveen Ceres	Nuveen Ceres invests in globally diversified farmland.
Nuveen, A TIAA Company	Nuveen Dionysus	Nuveen Dionysus invests in California vineyards.
Nuveen, A TIAA Company	TIAA-CREF Global Agriculture I LLC TIAA-CREF Global Agriculture II LLC	TIAA-CREF Global Agriculture I and II invest in high-quality farmland assets across numerous geographies spanning North America, South America and Australia.
Silver Creek Capital Management	[multiple strategies]	Silver Creek believes that sustainable agricultural practices are a critical component to the solution of one of the world's most pressing issues, climate change.
SLM Partners	SLM North America Fund	SLM Partners is an asset manager that acquires and manages rural land on behalf of institutional investors. Its mission is to scale up regenerative, ecological farming and forestry systems that deliver financial returns and environmental benefits.
Sonen Capital	Global Sustainable Real Asset Fund	The Global Sustainable Real Asset Fund invests in renewable energy, green real estate, and sustainable agriculture, through a manager-of-managers strategy.
Sustainable Farm Partners, LLP	Fairfield One, LLC	Fairfield One, LLC is an investment in Iowa farmland that will be converted to organic agriculture.
Vision Ridge Partners	Sustainable Asset Fund I	Vision Ridge Partners, the investment firm of Reuben Munger, recently created the Sustainable Asset Fund (SAF) in partnership with Capricorn Investment Group, Jeff Skoll's investment firm, and a broad base of investors committed to doing equally well for themselves and the planet. SAF will invest more than \$430 million in Real Assets across varied sustainable sectors, including water, using a combination of instruments including equity and debt.

APPENDIX B:

RESOURCES AND NETWORKS FOCUSED ON FINANCING REGENERATIVE AGRICULTURE

AgroEcology Fund

<https://www.agroecologyfund.org/>

Agroecology Knowledge Hub, UN Food and Agriculture Organization

<http://www.fao.org/agroecology/home/en/>

Clean Portfolio Project

<http://www.CleanPortfolio.org>

Conservation Finance Network

<https://www.conservationfinancenetwork.org/>

Delta Institute

<https://delta-institute.org/>

Croatian Institute

<http://www.croatianinstitute.org>

Food Finance Institute, University of Wisconsin

<https://foodfinanceinstitute.org/>

Funders for Regenerative Agriculture

<https://forainitiative.org/>

GatherLab

<https://www.gatherlab.net/>

Global Alliance for the Future of Food

<https://futureoffood.org/>

Global Impact Investing Network

<https://thegiin.org/>

Gratitude Railroad

<https://gratituderailroad.com/>

Green America Carbon Farming Innovation Network

<https://www.greenamerica.org/centerforsustainability/carbon-farming>

Nourishⁿ

<https://nourishn.com/>

Organic Agriculture Revitalization Strategy (OARS)

<http://www.OARSproject.org>

Platform for Carbon Accounting Financials

<http://carbonaccountingfinancials.com/>

Project Drawdown

<https://www.drawdown.org/>

ReGen Economics Network

<https://www.regen.network/>

Regeneration International

<https://regenerationinternational.org/>

Regenerative Agriculture Investor Network (RAIN)

<https://www.lifteconomy.com/rain>

Rodale Institute

<https://rodaleinstitute.org/>

RSF Social Finance Soil Health Capital Collaborative

<https://rsfsocialfinance.org/give/give-to-rsf-projects/soil-health-collaborative/>

Slow Money

<https://slowmoney.org/>

Social Capital Markets (SOCAP)

<https://socialcapitalmarkets.net/>

Sustainable Agriculture and Food System Funders

<http://www.safsf.org/>

Natural and Working Lands Initiative, US Climate Alliance

<https://www.usclimatealliance.org/nwlands/>

USDA, Conservation Finance at NRCS

<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/emkts/?cid=nrcseprd1396025>



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