



GROWING OUR FUTURE

SCALING REGENERATIVE AGRICULTURE IN
THE UNITED STATES OF AMERICA

FORUM
FOR THE
FUTURE

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Forum for the Future is a leading international sustainability non-profit with offices in London, New York, Singapore and Mumbai. We specialize in addressing critical global challenges by catalyzing change in key systems.

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“Regenerative agriculture allows actors across the current food system to use their skills, assets and determination to drive the transformation of a system which today is mostly geared towards efficiency and profit maximization for a few, to one that is driven by a goal to maximize access to nutrition for all, while also putting more back into the environment and society than it takes out. Regenerative agricultural practices are already here, particularly in the United States.

The challenge is understanding how we scale these practices. Taking a systems view — understanding the agricultural system as a set of interconnected actors and activities — helps us begin to understand how to influence this complex system in a way that drives transformative change. This report is our contribution to creating that shift.”

DR SALLY UREN

Chief Executive Officer, Forum for the Future

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EXECUTIVE SUMMARY

Imagine, 10 years from now, sitting down for dinner with friends, sharing nutritious, tasty food, produced by a farmer who was rewarded for restoring their land. Imagine how this moment, however light-hearted, could enable a resilient and productive food system while delivering the ecosystem services on which we depend.

At the time of writing, we are going through a public health crisis that has revealed the fragility of our current agriculture system, a far cry from this future vision. However, we have a unique and urgent opportunity to guide how the agriculture system grows so that we emerge from the COVID-19 crisis in a better place than where we started.

Through the 'Growing Our Future' project, it has become clear that, with the collaborative action of stakeholders across the American agriculture system, we can reimagine, reconfigure and regenerate our agriculture system. We can enable resilient supply chains, restore the health of our lands, and enable farmers and businesses to thrive. This report sets out the road map for that journey to transformation — a set of interlinked areas of action to deliver a truly regenerative agriculture system in the United States.

Our agriculture system as it exists today is incredibly successful at achieving its current goals — maximizing profit and driving efficiency from productive land over the short-term. However, this comes at the cost of soil

health, the nutritious quality of our food, high carbon emissions and declining farmer livelihoods. The agriculture system could be a powerful force in addressing our most pressing global challenges by restoring ecosystem services including soil health, water quality and biodiversity; diversifying production systems to meet our nutritional needs; focusing on nutrition quality; and building resilience and distributing value equitably. As we build toward a better agriculture system, this transition is an essential, if monumental, feat. It can only be accomplished through the collective effort of actors and stakeholders from every corner of the American agriculture system, working together to address the greatest societal challenges of the coming decade: climate change, public health crises and growing economic inequality.

Work toward regenerative agriculture in the United States has accelerated, particularly in the last five years, but is fragmented, with duplication of effort alongside gaps in existing approaches and a lack of connection between initiatives.



So, with funding from the Walmart Foundation, Forum for the Future led a collaborative process with stakeholders to identify the key opportunities to scale regenerative agriculture in the US, engaging diverse actors across the agriculture system, from manufacturers, investors and NGOs, to farmers, agricultural consultants and philanthropic funders. Participants provided a huge range of perspectives and approaches to regenerative agriculture. The process brought together stakeholders who might not usually work together and included voices that are otherwise rarely heard. It uncovered unexpected insights, shared challenges and built a collaborative view of the most important pathways to scaling regenerative agriculture.

This report outlines a shared view of the goals of a regenerative agriculture system in the United States and reveals the primary barriers that actors face. It identifies seven levers for change, which if pulled concurrently, can deliver the scale of transformation needed. Most importantly, it gives clear recommendations to diverse actors, from farmers and agribusiness, to businesses, investors and financial services, policy makers, consumers, researchers, non-profit organizations and philanthropists, of the role they can play in accelerating the big shift. While the process primarily focused on food and apparel businesses, these actions are equally relevant in other sectors with significant agricultural supply chains, from agroforestry to beauty and personal care.

This report explicitly looked at the American agriculture system and uncovers context and geographically specific barriers and enabling factors to scale regenerative agriculture in the United States of America.

SEVEN ACTIONS TO SUCCESSFULLY TRANSFORM TO REGENERATIVE AGRICULTURE

1

Create financial mechanisms and market structures that support regenerative outcomes

New funding mechanisms and incentives can rapidly accelerate transformation and enable new practices to scale. While an abundance of solutions currently exist, scaling will require new capital flows to support growth and transition. Shifting investment portfolios to regenerative agriculture could improve long-term yields as well as reducing volatility alongside social and environmental risk. In addition, investor influence on businesses to adopt regenerative agriculture strategies could be vital in providing the incentive to direct capital for new infrastructure investment across the supply chain.

2

Empower farmers to enable grassroots coalition building

The successful scaling of a resilient and restorative food system will ultimately depend on enabling farmers to steward their land through regenerative practices. Initiatives to scale regenerative agriculture must put farmers at the center and create the conditions for their success.

Grassroots farmer movements need to have a more prominent role in shaping policy, engaging consumers, and creating better financing mechanisms. Investment into regional farmer-led initiatives, peer-to-peer knowledge transfer and coalition action will help

farmers to engage proactively with industry and government, as well as with each other.

3

Shape policy to build a resilient agricultural economy

The policy frameworks that underpin the US agriculture policy need comprehensive reform. Stakeholders will need to work together to identify priority policy frameworks that incentivize transition, and invest in joined-up advocacy for a policy environment that proactively supports the shift to regenerative agriculture.

4

Build and demonstrate the business case

The business case needs to be especially clear for farmers considering transitioning to regenerative practices, as well as brands and retailers exploring more sustainable procurement and merchandising strategies. Local farmer champions, peer learning, and technical support on implementation strategy, will be critical.

Brands and retailers also need positive signals such as strong consumer demand and willingness to pay premiums for regenerative products.

5

Engage with consumers to increase demand for regenerative products

Millions of Americans are disconnected from how their food and fibers in consumer products are produced. While agriculture system stakeholders cannot wait for consumer demand to drive change, fostering deeper connections between consumers and

the origins of their food and fibers could align consumer demand with shifts in the supply chain. Increasing consumer education and awareness programs are required as are effective communication strategies that empower individuals to advocate for more regenerative products, linking purchasing to improvements for the planet and their communities.

6

Prioritize nutritional benefits to enable healthy diets

Unhealthy diets place a huge cost on the US health system, estimated at \$50 billion per year. Stakeholders need to see the future of agricultural production through the lens of 'sustainable nutrition', which addresses regenerative production that delivers sustainable and healthy consumption for all.

The agriculture system should recognize and account for the value of the socio-economic benefits of transforming to regenerative practices, and further peer-reviewed evidence that regenerative agriculture leads to better nutrition will support this transition.

7

Mobilize landowners to enable regenerative practices to mainstream

The relationships around land ownership play a key role in determining the environmental impacts of farming and uptake of environmental conservation. Due to the land tenure dynamics in the US, young and aspiring farmers embracing regenerative agriculture approaches often encounter challenges accessing land due to the lack of consistent long-term lease structures and the increasing cost of land.

The benefits of implementing regenerative agriculture approaches can take several years to realize. Programs that connect influential landowners and investors back to the land can help build their capacity to understand the benefits of regenerative agriculture and influence landowners to work with farmers.

COLLABORATION FOR ACCELERATION

All seven areas will require new forms of collaboration. Public and private sector stakeholders need to work together to shift the interconnected barriers farmers face in adopting regenerative practices. New alliances between agriculture stakeholders and public health leaders are needed to address shared goals and new ways of thinking across nutrition, climate and health to tackle food access and food system resilience. Pre-competitive collaboration will be key to cutting through shared challenges.

To learn more and explore how your organization can help transform the agriculture system in the United States, please contact Mary McCarthy at m.mccarthy@forumforthefuture.org.

To find out more about Forum for the Future's work on Sustainable Nutrition visit www.forumforthefuture.org/Pages/Category/food

WHY FOCUS ON REGENERATIVE AGRICULTURE IN THE US?

Agriculture sits at the nexus of some of the most pressing challenges facing the world today: climate change, food security and nutrition, water quality, biodiversity, and livelihoods. The Nature Conservancy estimates that the US loses 996 million metric tons of soil through erosion and the societal and environmental costs of mainstream agriculture amount to \$85 billion every year.¹ Agriculture systems emit 8–10% of US greenhouse gas emissions, while climate change could reduce the yield and protein value of staple crops.² The status quo simply does not work for smallholders; farmers filing for bankruptcy rose by 20% in 2019, the highest level in a decade.³

The COVID-19 crisis is exacerbating existing pressures across the agriculture supply chain, causing deep disruption and revealing the fragility of the food system. At the same time, it has shone light on core societal values of health and nutrition and recalibrated the importance of essential food system workers. Beyond this immediate crisis, we need to reframe how the US produces and consumes food and ensure that it can restore resilience and productivity while protecting our natural assets. A transition toward regenerative practices could bring a huge

win-win for farmers, food companies and the environment, and a foundation for a truly future-fit agriculture system.

Regenerative agriculture is, at its heart, an approach to farming that puts more back into the environment and society than it takes out.

Regenerative agriculture could accelerate progress towards the Sustainable Development Goals by improving livelihoods, enhancing food security, and improving water quality. Critically, it can help restore the health of our soil, a vitally important outcome given that soil stores more carbon than the world's biomass and atmosphere combined. Recarbonizing our soils could represent the most powerful shift in farming practice since the introduction of intensive farming systems in the 1950s and 1960s.



UNDERSTANDING AND ENABLING ROUTES TO SCALE: THE POWER OF SYSTEMS

A system is a set of interconnected parts that produce their own pattern of behavior over time. It can be an ecosystem, a social structure such as education, or an organization.

A systems approach allows us to view the world around us as a set of interconnections, and to use this understanding to identify areas for action — leverage points — that can change the way in which the system operates.

Systems are dynamic and always changing. Harnessing this dynamism towards a set of reframed goals for a system can change the way the whole system operates, delivering different outcomes.

UNLOCKING REGENERATIVE AGRICULTURE IN THE US: THE LANDSCAPE ASSESSMENT APPROACH

The regenerative agriculture space is incredibly dynamic. Progress on regenerative agriculture in the US has accelerated in the last five years, but is fragmented, with duplication of effort alongside gaps in existing approaches and a lack of connection between initiatives.

With funding from the Walmart Foundation, Forum for the Future and stakeholders from across the agriculture system led a collaborative process to identify the key opportunities to work together to scale regenerative agriculture in the US, based on an understanding of current activities and initiatives. The goal was to create a joined-up approach across the system to accelerate action on the ground.

Forum for the Future conducted more than 40 interviews and hosted a virtual workshop engaging over 60 organizations across the regenerative agriculture system in the US, representing diversity in roles (food manufacturers, investors, NGOs, farmers, agriculture consultants, philanthropic funders, etc.) and different approaches to regenerative agriculture. We engaged stakeholders who might not usually work together, and included a range of voices that might otherwise not be heard. The process uncovered unexpected insights, shared challenges and a collaborative view of routes to scaling regenerative agriculture.

As stakeholders answered six key questions, they identified leverage points for changing the system while gaining a better understanding of the perspectives of others. The next section synthesizes the outcomes revealed by this work.

- ? **Who has the power, influence and resources to drive change?**
- ? **What are the barriers encountered while working to scale regenerative agriculture practice in the US? What is causing these barriers? How can they be overcome?**
- ? **Where are the signs of things changing and how much momentum is there behind the change?**
- ? **What is not changing in the regenerative agriculture space in the US?**
- ? **Where are new ideas and innovations coming from?**
- ? **Which innovations are beginning to infiltrate the system? Where are there existing initiatives or innovations in need of support to scale?**

“The world is a complex, interconnected, finite, ecological–social–psychological–economic system. We treat it as if it were not, as if it were divisible, separable, simple, and infinite. Our persistent, intractable global problems arise directly from this mismatch.”

DONELLA MEADOWS

Environmental scientist, teacher, and writer

An aerial photograph of a landscape is shown, divided into three distinct sections. The top section is a vibrant yellow field, possibly a crop field, with dark, curved tracks from a tractor. The middle section is a dense, lush green forest. The bottom section is a brown, tilled field. A large, dark red geometric shape, resembling a stylized 'A' or a large triangle, is overlaid on the image, framing the text. The background of the entire image is a dark red color with a subtle pattern of white dots and lines, suggesting a network or data structure.

CHAPTER ONE:

THE CHALLENGE

**TRANSFORMING THE AGRICULTURE SYSTEM:
THE BARRIERS HOLDING BACK PROGRESS**

SHIFTING THE GOALS OF THE AGRICULTURE SYSTEM

ENVISIONING THE GOALS OF A REGENERATIVE AGRICULTURE SYSTEM

Today's agricultural system is not broken. In fact, it works extremely well to deliver the outcomes and purpose it has been designed to achieve. The last forty years of agriculture have been incredibly successful in growing productivity. However, other costs such as soil degradation and biodiversity loss have been externalized. At the same time, farmer incomes have fallen in real terms. Shifting to regenerative agriculture requires a fundamental transformation in the goals of our agriculture system, from one focused exclusively on maximizing yield and efficiency to one

that pursues economic, environmental and social outcomes *alongside* productivity.

This project worked with stakeholders to think about how the goals of a regenerative agriculture system might differ from the current agriculture system today. The rich insights and contributions from this research articulated the goals of the current system, and a vision for what a regenerative agriculture system should be designed to achieve instead.

CURRENT AGRICULTURE SYSTEM

Profit maximization for a small number of powerful players over the short term

Extractive

Economies of scale and intensive, specialized production

Maximize calories produced

Externalizes environmental impacts

Competitive price reduction for consumers

Maximize profit for power holders in supply chains

Shared goals

PRODUCTIVE

VIABLE

PROFITABLE

FOOD SAFETY

REGENERATIVE AGRICULTURE SYSTEM

Putting more back into the environment and society than it takes out

Restores ecosystems services at the landscape level (soil health, water quality, biodiversity)

Localize and diversify production systems

Maximize nutrition and public health

Resilient: conditions to allow system participants to thrive and adapt

Connection between consumers and production

Equitable distribution of value



As we consider interventions to scale regenerative agriculture, we need to ask whether we are locking in the existing system, or building toward the goals of a future regenerative system?

NAVIGATING THE LANDSCAPE

One way of understanding how the agriculture system works now, and what needs to shift, is through the lens of the Multi-Level Perspective (MLP) framework. It helps bring order and understanding to what is happening, and can describe the leverage points and interventions that drive transformative change. This understanding can then enable deliberate action where it really matters.

LANDSCAPE

The big picture “operating context” of long term mega-trends and shared social values, for example, climate change, public health, economic inequality.

REGIME

Describes the mainstream of the system, day-to-day, “business as usual” where change tends to happen incrementally, unless systemic pressures enable more transformative change.

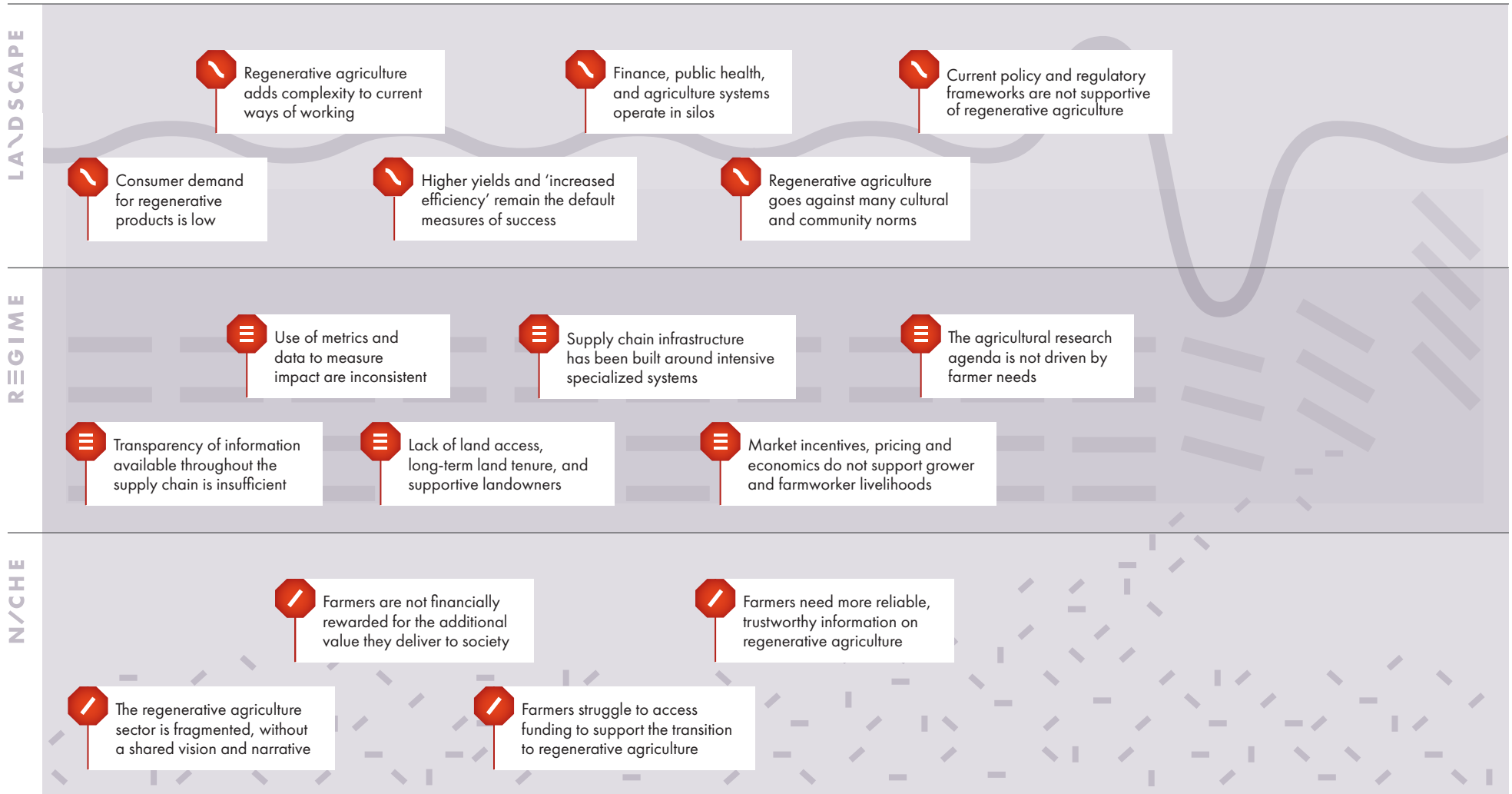
NICHE

Where new ideas, concepts and innovations emerge and percolate until they begin to mature and edge into the mainstream market.

Systems change when pressure from the landscape and/or innovation in the niche creates pioneering new practice in the regime.

MAPPING THE BARRIERS TO SCALING REGENERATIVE AGRICULTURE

The research and engagement process used the MLP framework to identify the most prevalent barriers that are preventing the uptake and scaling of regenerative agriculture practices. This highlights where deliberate collective action is likely to have the biggest impact. More detailed descriptions of these barriers are included in the Appendix.





CHAPTER TWO:

THE OPPORTUNITY

**ACCELERATING PROGRESS:
THE LEVERS FOR CHANGE**

ACTING WHERE IT MATTERS: LEVERS FOR CHANGE

IDENTIFYING LEVERS FOR CHANGE

Leverage points are places within a complex system where a small shift in one thing can produce big changes in everything.⁴ They equate to areas for stakeholders to take action that can drive transformative change.

Through the collaborative process, stakeholders identified the most impactful leverage points to accelerate the movement towards regenerative agriculture. The leverage points are presented below as a set of powerful statements aimed to provoke action to address the major barriers outlined above. As different leverage points may be connected, it will often be necessary to address more than one at the same time.

Following this summary of the leverage points we will focus on each one in more detail — outlining which barriers it addresses, what work is currently happening, and what else would need to occur to enable systemic change.

While you explore the map on the next page and the following leverage point deep-dives, consider:



Where and how does my organization have influence to activate a leverage point?

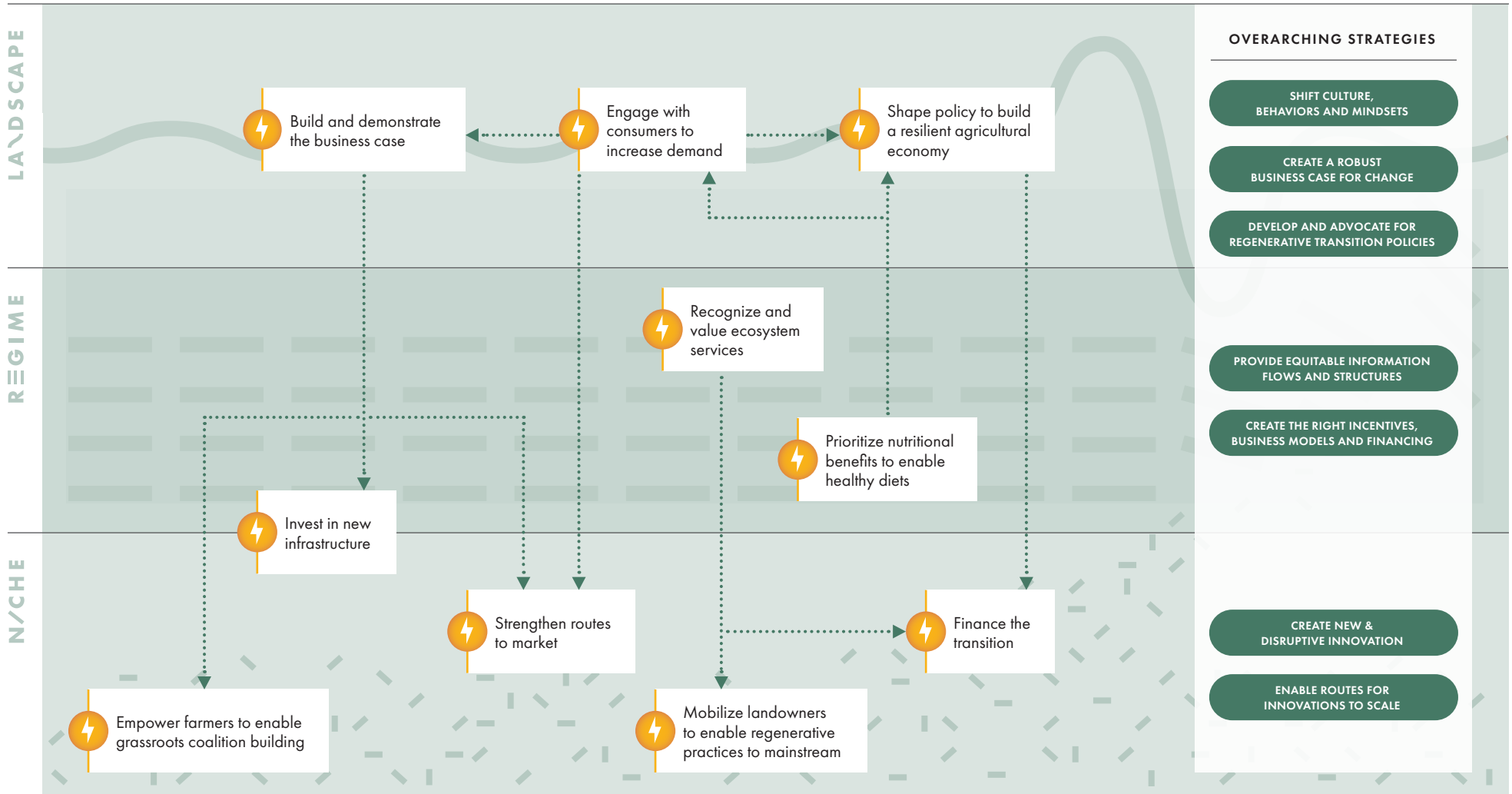


Where would a new partnership help accelerate progress within my own work?



LEVERAGE POINTS TO ACTIVATE SYSTEM CHANGE

The map below captures the leverage points to transform the agriculture system in the US to be regenerative. It also represents the interconnections between leverage points and how they need to be addressed simultaneously. At each level of the MLP there are overarching strategies to drive change and the enabling environment to ensure success.



CREATE FINANCIAL MECHANISMS AND MARKET STRUCTURES THAT SUPPORT REGENERATIVE OUTCOMES

A critical area for action revolves around shifting market structures towards regeneration. The current economic system rewards short-term financial gain, focuses on economies of scale to maximize yield and efficiency, commoditizes crops, and externalizes environmental and social costs. The current business model works very well for a small number of powerful players but externalizes environmental impacts and does not ensure decent livelihoods for farmers. To secure the future of a resilient agriculture industry, the goals of the economic system need to shift towards long-term resilience for farmers, livelihoods and communities, ensuring fairer distribution of value and risk between stakeholders, and the regeneration of land and resources. This shift will impact all aspects of financial models for agriculture, from investment in innovation to underpinning risk through crop insurance.

The agricultural system needs to radically transform to meet the needs of people while operating within planetary boundaries. Changing the economic paradigm is a complex and multifaceted issue.

This report identifies four key leverage points to help catalyze this transformation by creating a supportive economic structure that provides farmers with financial freedom to pursue regenerative farming.

- 1.1 Finance the transition** providing assistance to farmers transitioning to regenerative practices
- 1.2 Invest in new infrastructure** reducing the financial burden of new capital investments for farmers
- 1.3 Strengthen routes to market** creating robust marketplaces
- 1.4 Recognize and value ecosystem services**, rewarding farmers for land stewardship

CONNECTION TO BARRIERS

Each leverage point directly relates to and addresses barriers which *Growing Our Future* identified. These maps offer an illustrative example of the interconnected nature of each leverage point and key barriers they help unlock.



-  Consumer demand for regenerative products is low
-  Current policy and regulatory frameworks are not supportive of regenerative agriculture
-  Transparency of information available throughout the supply chain is insufficient
-  Use of metrics and data to measure impact are inconsistent
-  Market incentives, pricing and economics do not support grower and farmworker livelihoods
-  Supply chain infrastructure has been built around intensive specialized systems
-  Farmers struggle to access funding to support the transition to regenerative agriculture

FINANCE THE TRANSITION

HOW MIGHT WE CREATE FINANCING MECHANISMS THAT SUPPORT FARMERS IN TRANSITION TO REGENERATIVE AGRICULTURE?

A farmer's journey from conventional towards regenerative agriculture often carries financial risk and uncertainty. Farmers cite concerns about retaining profitability during the transition as a common barrier.

For example, transitioning may require adopting diversified operations and outputs, and piloting new ways of working. There can also be a time lag before farmers reap the rewards, for example, from improved soil health and reduced dependency on inputs, the time for new crops to harvest (especially tree crops), or accessing premium organic markets and meeting certification standards.

Many farmers would benefit from a suite of assistance programs during the transition period. This could include innovative forms of collaboration and financial assistance, farmer-centric safeguards and a sufficient term investment horizon, perhaps 3–10 years. For example, a blended financial assistance program might include initial philanthropic and grant funding, alongside or before maturing into loans and more traditional investments.

Stakeholders needed to drive change

Businesses with significant agricultural supply chains

Investors and financial services

Philanthropic organizations

Policy makers

WHAT MIGHT IT LOOK LIKE TO WORK ON THIS?

Akiptan, a Native American Community Development Financial Institution, offers patient investments through a suite of services including financing youth, startups, operating costs, and ownership. Their approach brings back the notion of a liquidity premium to investors. Working on a longer time horizon with producers instead of linking financing to the depreciable life of the assets, Akiptan's approach can improve outcomes for producers, investors, and rural communities. Their Sustainability Finance Portfolio realizes a 10% internal rate of return, net of fees, while improving the producer's cash flow by \$13,000 per year, for every \$100,000 in capital deployed vs. conventional lending.

Other organizations and projects: GO Steward, Rabo Agrifinance Bank, CCOF Foundation Organic Transition Funds, Regenerative Agriculture Investor Network (RAIN), Mad Agriculture.

INVEST IN NEW INFRASTRUCTURE

HOW MIGHT WE INVEST IN SUPPORTIVE INFRASTRUCTURE?

Farm equipment represents the second highest capital investment for farmers.⁵ The adoption of regenerative agriculture often requires upfront capital investment, such as new machinery, equipment and related services. For example, product storage and processing facilities need to adapt to support greater species diversity and batch sizes from small grains and mixed farming systems. These capital expenses can create barriers to adopting regenerative farming practices.

Financial markets need to better understand and support the adoption of infrastructure required for regenerative supply chains to ensure the affordability of new capital investments. Financial assistance to exit conventional practices and switch to new types of infrastructure is needed as there may be locked-in investments and the risk of stranded assets. Investors also need to diligently support organizational and social infrastructure such as cooperative models for sharing equipment and facilities. A shift to more local production and increasing the share of small-holder farmers will create the need for farmers to share infrastructure and processing instead of single-farm operations.

Stakeholders needed to drive change

Businesses with significant agricultural supply chains

Agribusinesses

Investors and financial services

Philanthropic organizations

Farmers



WHAT MIGHT IT LOOK LIKE TO WORK ON THIS?

The Regenerative Agriculture Alliance (RAA) is developing a worker-owned poultry processing plant and associated agriculture industrial park aimed at creating new, value-added economic opportunities for local farmers practicing regenerative farming in Minnesota. In partnership with key funders, regional partners, the MN legislature and the city of Albert Lea, the RAA is building the stepping stones to make this regional project possible.

Other organizations and projects: The Croatan Institute and Delta Institute's Soil Wealth assessment; the Soil Carbon Initiative's work to build a common standard for soil carbon testing.

STRENGTHEN ROUTES TO MARKET

HOW MIGHT WE ENABLE ORGANIZATIONS TO COLLABORATE TO IDENTIFY AND DEVELOP NEW ROUTES TO MARKET?

Regenerative farmers diversifying into less common crop varieties and livestock breeds need confidence that demand and routes to market exist. Collaboration between farmers, farmer-led networks, and retailers can help develop these routes to market.

More progressive marketplaces such as community supported agriculture (CSAs), and co-ops offer a good route to connect buyers and sellers of diverse crops. These types of trading platforms support farmers and enable more regional, local markets that move farms closer to their consumers.

While regional markets should be a key focus, there is also need to provide more accessible routes to market for large-scale and commodity agriculture farmers looking to diversify their cropping system. Different support will be needed to develop routes to market for fibers and leather products for the apparel and textile industry. Longer-term contracts, and brand partnerships directly with farmers could be a successful model. Farmers across the agricultural system need assurances that taking on risks to diversify will pay off and that a robust and stable market exists.

Opportunities to build consumer demand can be gained by revealing the benefits: supporting local farmers, demonstrating provenance, the enjoyment of unique local varieties, health and nutritional benefits and high animal welfare.

Stakeholders needed to drive change

Businesses with significant agricultural supply chains

Agribusinesses

Research institutions

Investors and financial services

Farmers

Policy makers



WHAT MIGHT IT LOOK LIKE TO WORK ON THIS?

Small Grains on the Corn Belt: Incorporating small grains and cover crops into corn and soy rotations in the Midwest has been shown to deliver several sustainability benefits. However, farmers cite the lack of market access as the biggest barrier to bringing small grains back into their rotation system. With grant funding support, the Sustainable Food Lab and Practical Farmers of Iowa have been working to establish the right conditions to make small grains work for farmers, by bringing farmers and supply chain partners together to explore the environmental and farm economic benefits and test new markets for small grains, like oats and wheat, grown in the Midwest.

Other organizations and projects: Open Food Network USA, Patagonia Provisions; CSA movement and support networks; Crop Trust and Food Forever, Grassroots Farmers Cooperative, Now Farms through GrownNY, Practical Farmers of Iowa.

RECOGNIZE AND VALUE ECOSYSTEM SERVICES

HOW MIGHT THE STRENGTHENING OF ECOSYSTEM SERVICES BE RECOGNIZED AND INVESTED IN BY INDUSTRY AND GOVERNMENT?

Agricultural landscapes offer much more value than just the products they grow. Current agriculture practices can deplete natural resources, but with appropriate actions, farming systems can enhance biodiversity and ecosystem health. Regenerative land stewardship by farmers influences the levels of biodiversity, carbon sequestration, nutrient cycling and water quality, as well as other ecosystem services. Recognizing farmers' full contribution to society as land stewards as well as commodity providers can address climate change and strengthens rural communities to thrive both economically and ecologically.

Financial compensations for environmental conservation means fundamentally re-thinking value; shifting away from least-cost models to those that fairly reward regenerative stewardship and take account of long-term risk. The mainstream market structure does not price externalities into a farmer's wage or factor in the full cost of production. Emerging financing markets, such as carbon offset mechanisms that pay farmers to sequester carbon, encourage farmers to achieve improved ecosystem outcomes. The development of services that support greater traceability and transparent flows of information across supply chains underpin this opportunity.

Stakeholders needed to drive change

Businesses with significant agricultural supply chains

Agribusinesses

Research institutions

Investors and financial services

Farmers

Policy makers

The term 'ecosystem services' represents the aggregation of benefits that nature provides to society. The Millennium Ecosystem Assessment defines ecosystem services as "the benefits people obtain from ecosystems. These include provisioning services such as food, water, timber, and fiber; regulating services that affect climate, floods, disease, wastes, and water quality; cultural services that provide recreational, aesthetic, and spiritual benefits; and supporting services such as soil formation, photosynthesis, and nutrient cycling."⁶



WHAT MIGHT IT LOOK LIKE TO WORK ON THIS?

Harborview Farms produce corn, wheat, and soybeans for the Mid-Atlantic region, incorporating multi-species cover crops and no-till practices. They were the first farm to use the Nori platform to quantify and verify new carbon being added to soils through their practices. To date, the farm has netted over \$100,000 in selling Nori Carbon Removal Tons to almost 500 small buyers.

Other organizations and projects: Ecosystem Services Market Consortium (ESMC), IndigoAg, Ducks Unlimited, Pur Project Lab and IPI.

EMPOWER FARMERS TO ENABLE GRASSROOTS COALITION BUILDING

HOW MIGHT WE ELEVATE THE SOCIETAL VALUE OF FARMERS TO ENSURE FARMERS ARE EMPOWERED TO ADDRESS CLIMATE CHANGE WHILE STRENGTHENING RURAL COMMUNITIES?

Farmers are essential workers within the American economy, yet often feel under-valued⁷ and unsupported⁸ — especially those invested in environmentally and socially responsible practices. America needs to sow the seeds of a culture that gives agency to farmers and elevates those who embrace regenerative practices. Empowering farmers will strengthen the economy, revitalize rural America and create more equitable power dynamics within the agriculture system.

Stakeholders from across the system recognize the need to shift more power back into small farms and regional agricultural hubs. Raising the profile and increasing the influence of farmers can empower grassroot farmer movements to play a more prominent role in shaping policy, engaging consumers, and creating better financing mechanisms.

Investment into regional farmer-led initiatives and coalitions will help fuel a regenerative agriculture movement by providing platforms for farmers to engage proactively with industry and government, as well as with each other, through farmer-trusted knowledge exchange.

Stakeholders needed to drive change

Businesses with significant agricultural supply chains

Agribusinesses

Research institutions

Non-profits

Investors and financial services

Philanthropic organizations

Policy makers



Regenerative agriculture goes against many cultural and community norms

Current policy and regulatory frameworks are not supportive of regenerative agriculture

Market incentives, pricing and economics do not support grower and farmworker livelihoods

The agricultural research agenda is not driven by farmer needs

Lack of land access, long-term land tenure, and supportive landowners

Farmers need more reliable, trustworthy information on regenerative agriculture

WHAT MIGHT IT LOOK LIKE TO WORK ON THIS?

National Young Farmers Coalition, a grassroots advocacy network of beginning farmers in the US, fights for the future of regenerative agriculture through a network of farmer-led coalitions. Chapters across the country boost morale among new farmers, facilitate friendships and business partnerships, and offer an organizing platform for tackling barriers on the local, state, and national level. Recent work includes federal and state advocacy campaigns on land access, soil health policy, and student loan debt relief as well as providing the next generation of farmers the resources they need to navigate the COVID-19 crisis.

Other organizations and projects: Native American Agriculture Fund, Soil Health Academy, Grass Root Farmers' Cooperative, Heifer USA, The Nature Conservancy, Savanna Institute.

SHAPE POLICY TO BUILD A RESILIENT AGRICULTURAL ECONOMY

HOW MIGHT WE WORK COLLABORATIVELY ACROSS STAKEHOLDER GROUPS TO DEVELOP POLICY SOLUTIONS THAT SUPPORT REGENERATIVE AGRICULTURE?

US agricultural policy heavily influences US farming systems, covering aspects such as crop insurance, land conversion, trade, nutrition, and the research agenda. The current regulatory regime incentivizes the status quo; rethinking how to structure future policy, stimulus packages, and rural economic development plans will be key to creating an agriculture system that works for people and planet.

Stakeholders highlighted the importance of passing progressive policy and coordinated federal, state and local legislation reform. As a pragmatic first step, the US should increasingly utilize USDA funding mechanisms, such as the Conservation Stewardship Program, to engage policy makers while providing increased subsidies for regenerative practices. Policies also need to focus on committing government funding towards research on regenerative agriculture practices, improving land tenure and access, and addressing entrenched equity issues by supporting historically underserved farmers. Policy frameworks across key areas from public health, climate, and food security need to be integrated, to deliver the scale of benefits possible from regenerative practices.

This landscape assessment highlighted the gap of activity aimed at addressing integrated, comprehensive policy reform, indicating that this is an untapped area of leverage with tremendous potential.

Stakeholders needed to drive change

Businesses with significant agricultural supply chains

Agribusinesses

Investors and financial services

Research institutions

Non-profits

Farmers

Policy makers

Trade associations



Current policy and regulatory frameworks are not supportive of regenerative agriculture



Market incentives, pricing and economics do not support grower and farmworker livelihoods

WHAT MIGHT IT LOOK LIKE TO WORK ON THIS?

Meridian Institute convenes leaders to map policy changes needed to transform the US food system and support regenerative agriculture. Meridian is home to AGree Economic and Environmental Risk Coalition, a bipartisan effort that develops and advocates for changes in law and policy to promote adoption of agricultural conservation practices that improve environmental quality and strengthen producer livelihoods. AGree was active during 2018 Farm Bill negotiations, successfully lobbying for provisions related to agricultural data and cover crops and is currently working on initiatives around crop insurance, agriculture data access, cover crops, and banking that will advance the transition towards regenerative agriculture.

Other organizations, projects, and policy measures: National Sustainable Agriculture Coalition, Sunrise Movement, Native American Community Development Financial Institutions, Conservation Stewardship Program, Environmental Quality Incentive Program, and the Beginning Farmers and Ranchers Development Program.

BUILD AND DEMONSTRATE THE BUSINESS CASE

HOW MIGHT WE EXEMPLIFY PROFITABLE REGENERATIVE AGRICULTURE STRATEGIES TO FARMERS, RETAILERS, INSURERS AND OTHER FINANCIAL PLAYERS?

For many, the relationship between regenerative agriculture and an organization's financial performance remains unclear. Stakeholders need proof that regenerative agriculture can improve business resilience and financial performance across the value chain. The business case needs to be especially clear for 1) farmers potentially transitioning to regenerative practices, and 2) brands and retailers exploring more sustainable procurement and merchandising strategies.

Regenerative agriculture offers farmers an approach that holds promise for increased profitability, diverse revenue streams, more stable markets and an increased likelihood of successful farm transfer to the next generation. However, for many farmers, seeing is believing.⁹ Farmers need confidence that regenerative agriculture will financially benefit them, based on positive results within relevant regions and markets. Critical success factors include working with local champions, facilitating peer learning, providing technical support on implementation strategy as well as robust data on expected investment and returns in both financial and ecological terms.

Brands and retailers also need positive signals in order to invest in regenerative products. Many see the need for signals of strong consumer demand and willingness to pay premiums for regenerative products. Brands can have significant influence and

power within their supply chains and wider industry, but their behaviors are very influenced by consumers. Increasing consumer engagement will require demonstrating the value of regenerative approaches through education and awareness programs as well as effective communication strategies that empower individuals to advocate for more regenerative systems to improve the state of the planet and their communities.

Stakeholders needed to drive change

Businesses with significant agricultural supply chains

Agribusinesses

Farmers

Policy makers



WHAT MIGHT IT LOOK LIKE TO WORK ON THIS?

Kering, a global luxury group, has become a Frontier Founder under Savory Institute Land to Market program to promote and support the regenerative production of raw materials in its leather and fiber supply chains. Kering will work together with Savory to support farmers pursuing and demonstrating positive ecological outcomes on their land. This will provide Kering with new regenerative sourcing options that can be verified and traced back to the farm. Their commitment will reduce Kering's environmental footprint (measured and monetized by their EP&L), offer financial incentive for these sourcing partners to continue adoption for regenerative practices, while also providing pathways for other companies to incorporate regenerative fibers and products into supply chains.

Other organizations and projects: American Farmland Trust, General Mills supporting UnderstandingAg, Patagonia Provisions, FAI Farms.



- Market incentives, pricing and economics do not support grower and farmworker livelihoods
- Transparency of information available throughout the supply chain is insufficient
- Use of metrics and data to measure impact are inconsistent
- Farmers need more reliable, trustworthy information on regenerative agriculture

ENGAGE WITH CONSUMERS TO INCREASE DEMAND

HOW MIGHT WE DEMONSTRATE THE VALUE OF REGENERATIVE SYSTEMS TO THE CONSUMERS?

Consumers hold significant power within the supply chain and wider industry. Purchasing habits influence brands' merchandising and marketing strategies. Consumers acting as engaged constituents can also lend power in support of new policy and legislation. However, while consumer interest and demand for sustainability has generally grown, understanding of and demand for "regenerative" remains very light, compared with other niche movements such as organic.

What might it look like to communicate regenerative agriculture to consumers? Stakeholders agree on the importance of increasing consumer engagement, however lack consensus around best tactics. The most successful approaches to date include creative uses of media, conveying health and nutritional benefits, and creating links back to local and community-based supply chains. Consistent language and aligned messages with consumers' motivations will drive demand. Researchers should further study the psychology behind the consumption of sustainable products, and what drives mainstream behavior change, such as concern for safety, the need to nurture, or egocentric fulfillment.

Stakeholders needed to drive change

Businesses with significant agricultural supply chains

Non-profits

Philanthropic organizations

Media

Influencers, for example, sports and other celebrities

Research Institutions



Consumer demand for regenerative products is low



The agricultural research agenda is not driven by farmer needs

WHAT MIGHT IT LOOK LIKE TO WORK ON THIS?

Regenerative Organic Certified (ROC) works with leading brands to bring to market certified regenerative organic products. This program enables brands to work within their own supply chain and transition key crops and fibers since ROC offers a pathway to a viable consumer-facing marketplace for products produced regeneratively. The Regenerative Organic Alliance (ROA), which oversees ROC, expects to bring more than 100 ROC operations to market by the end of 2020.

ROC has three levels — Gold, Silver, and Bronze. ROC offers guidance for farms to progress through the levels, recognizing that Gold especially is an aspirational standard intended to set the highest bar for what's possible in regenerative systems.

Other organizations and projects: Kiss the Ground, Savory Institute's Land to Market certification; Unbroken Ground; Dr. Bronner's, HowGood.

PRIORITIZE NUTRITIONAL BENEFITS TO ENABLE HEALTHY DIETS

HOW MIGHT WE BETTER UNDERSTAND AND PRIORITIZE THE NUTRITIONAL QUALITY OF FOOD PRODUCED VIA REGENERATIVE FARMING?

Malnourishment and undernutrition impact a significant proportion of the world's population. The costs of poor diets are considered to count in \$trillions globally, with research estimating healthcare costs of \$50 billion a year in the US alone, and poor diets implicated in almost a half of all cardiometabolic deaths and nearly a fifth of the costs of strokes and type 2 diabetes.¹⁰ Impacts of climate change have the potential to further decrease the nutritional value of important food crops globally.¹¹

Experts recognize the nutritional benefits of a diverse and balanced diet.¹² The general shift from traditional food crops towards more specialized, high-value cash crops is one factor that has contributed to a food system where some communities are unable to access sufficient nutrition. Regenerative agricultural systems typically incorporate an increased number of crop rotations and species selections that have high nutritional value, while pasture-fed livestock can provide more nutritious, healthier outputs.¹³

However, many of these benefits are not well understood and the US food system tends to prioritize yields and production efficiencies over the nutrition provided per hectare. We need to bridge the divide between healthy, nutritious diets and conventional agriculture and recognize the socio-economic benefits of focusing on a 'sustainable nutrition' approach which addresses both regenerative farming and

sustainable healthy consumption for all. Additional peer reviewed research and publication of data to show conclusive evidence that regenerative agriculture leads to better nutrition will benefit this transformation.

Stakeholders needed to drive change

Businesses with significant agricultural supply chains

Research institutions

Philanthropic organizations

Farmers

Policy makers



-  Consumer demand for regenerative products is low
-  Market incentives, pricing and economics do not support grower and farmworker livelihoods
-  Transparency of information available throughout the supply chain is insufficient
-  The agricultural research agenda is not driven by farmer needs

WHAT MIGHT IT LOOK LIKE TO WORK ON THIS?

Rodale Institute conducts research and education surrounding regenerative organic farming. Their research includes investigations into the links between soil health and human health, comparing the nutrient densities of crops grown in different systems. They have also partnered with The Plantrician Project to build a Regenerative Health Institute, and published a new white paper that explores the links between farming and human health.

Other organizations and projects: Bionutrient Food Association, Soil Health Institute, Soil to Nutrition project, Bionutrient Food Association.

MOBILIZE LANDOWNERS TO ENABLE REGENERATIVE PRACTICES TO MAINSTREAM

HOW MIGHT WE MOBILIZE LANDOWNERS AS CATALYSTS FOR THE ADOPTION OF REGENERATIVE AGRICULTURE PRACTICES?

The relationships around land ownership play a key role in determining the environmental impacts of farming and uptake of environmental conservation.¹⁴ In the US, farmers rent more than half of cropland and 25% of pastureland.¹⁵ Since the benefits of implementing regenerative agriculture approaches can take several years to realize, scaling regenerative agriculture will require creating positive and supportive relationships between landowners and farmers toward shared goals. Farmers need secure, longer-term leases to justify their investments.

In the US, young and aspiring farmers that embrace regenerative agriculture approaches often encounter challenges accessing land due to the lack of consistent long-term lease structures and the increasing cost of land driven by competition with developers. A potential 'opening' to engage landowners will occur as the generational shift coincides with ownership transition.¹⁶ Programs that enable, empower, and connect influential landowners and investors back to the land can help build their capacity to understand regenerative agriculture and influence landowners to work with farmers. Institutional and non-traditional land owner relationships offer interesting opportunities and could play an influential role.

Stakeholders needed to drive change

Agribusinesses

Non-profits

Investors and financial services

Philanthropic organizations

Farmers

Policy makers



Lack of land access, long-term land tenure, and supportive landowners

WHAT MIGHT IT LOOK LIKE TO WORK ON THIS?

The American Farmland Trust (AFT) trains and supports professionals from across the nation who help prospective farmers and ranchers secure the right land and take on a new business. Programs such as their New York Farmland Finder helps farmers seeking land and landowners wanting to keep their land in farming.

Weidert Farm in Washington's Walla Walla Valley recently transitioned from producing commodity crops to wine grapes, apples, and blueberries with investment and infrastructure support from Farmland LP. Farmland LP is a sustainable farmland investment company that buys commodity farmland and adds value by "securing organic certification, investing in infrastructure, and increasing crop diversity". They then lease the land to farmers, and share revenues.

Other organizations and projects: Kiss the Ground's Farmland Program, National Young Farmers Coalition has initiatives to keep farmland affordable for new generations and support them to adapt to climate change.





CHAPTER THREE:

CATALYZING CHANGE

**FROM VISION TO ACTION:
WHAT IS YOUR ROLE?**

RECOMMENDATIONS

SHAPING A REGENERATIVE FUTURE: WHAT IS YOUR ROLE?

Regenerative agriculture provides a powerful framing that can deliver positive impact toward our most pressing environmental and social challenges.

It stimulates a fundamental shift in the way we think about the agriculture system, and the economic system of which it is a part. To meet these challenges, the shift to regenerative agriculture must happen at the magnitude of millions of acres, with collaborative efforts from stakeholders across the sector.



How can different actors enable the transformation?

Agribusinesses

Develop infrastructure for the regenerative agriculture system as farmers move toward more diversified production systems (for example, intercropping, agroforestry and integrated livestock).

Build transparent supply chains in partnership with manufacturers and retailers by investing in industry-aligned, farmer-supported data gathering and sharing.

Re-wire business models to leverage networks of agriculture consultants and researchers to deliver value for ecosystem services, carbon sequestration and other benefits.

Build regenerative capability by providing the skills and training needed by farmers transitioning to more complex farming systems.

Advocate for supportive policy utilizing existing USDA funding mechanisms, such as the conservation stewardship program, while pursuing integrated and comprehensive policy reform.

Businesses with significant agricultural supply chains

Test and develop new regenerative business models which drive broader value creation and go beyond current short-term profit cycles to consider the long-term risk hidden in existing extractive business models.



Take a systemic approach to procurement that identifies interdependencies between brands or products that may have separate but compatible agricultural inputs, and encourage farmers to leverage these synergies, such as cover cropping. For example, conventional supply chains are configured to purchase single inputs in bulk, while new approaches could support a diversity of crops.

Collaborate internally and externally across the system to create new partnerships. For example, business leaders and sustainability professionals need to collaborate to propose policy reforms and procurement teams need to build new relationships to provide long-term contracts for farmers.

Engage consumers to increase consumer demand and values towards regeneratively produced products with more diverse and novel ingredients and fibers.

Farmers

Learn, support and share new innovations with peers — those that have successfully made the transition to regenerative agriculture can support further adoption by being advocates amongst their communities and peers to help shift mindsets, skills and support each other to adjust to the increasing complexity associated with regenerative agriculture.

Investors and financial services

Support innovation of financial mechanisms and market structures needed to drive regenerative agriculture to scale.

Shift investment portfolios to include a greater proportion of businesses involved in regenerative agriculture.

Influence businesses, as shareholders, to adopt regenerative agriculture in their strategies and provide the capital for infrastructure investment across the supply chain.

Non-profits

Design programs to account for the variety of barriers a farmer encounters on their journey towards delivering regenerative outcomes.

Work in partnership to develop a coordinated and cohesive approach that maximizes impact and leverages resources across the system.

Convene a wide range of stakeholders to design, publish, and advocate for progressive proposals.

Philanthropic and development organizations

Provide access to patient, risk-tolerant capital that supports new business ventures in regenerative agriculture. As new regenerative businesses mature, other forms of investment can step in to ensure long-term financial sustainability.

Enable the collaboration needed between the various for-profit and non-profit platforms in order to scale existing activities.

Policy makers

Implement policies within existing frameworks to support regenerative agriculture practices.

Engage with diverse stakeholders to explore long-term policy mechanisms that align with the goals of a regenerative system.

Develop integrated approaches to policy that recognize interlinkages between public health, environment, agriculture and food security, and support transition to agricultural systems that deliver outcomes across these areas.

Develop fiscal policies that enable farmers and wider food system actors to transition farming practices.

Develop policy that actively values natural capital and ecosystem services.

Research institutions

Work directly with farmers and producers to set research agendas to ensure research supports on-the-ground farmer adoption.

Connect with information sources that farmers trust to help farmers adopt the latest research-supported agriculture practices that will be effective in their specific contexts.

Refocus on key research gaps to spur greater investment and support from policy makers and business. Key needs include landscape based, context specific research and alignment around the links between regenerative agriculture practices, food nutrient density and nutritional quality.

CONCLUSION

PATHWAYS TO TRANSFORMATION

Amidst the rapidly evolving COVID-19 crisis, diverse representatives from the regenerative agriculture system gathered to share their expert insights on how to transform agriculture in the US.

The immediate crisis has brought the fault lines in our agriculture system into stark view. In the short-term, it has exacerbated the existing pressure on the physical, mental and financial health of growers and workers in grocery stores, processing plants and fields. But underlying this are even greater challenges as land and soil degrades and environmental challenges and altered weather patterns increase volatility in food and fiber production. The transition to regenerative agriculture will need to shift the underlying structures toward a paradigm that fosters resilience in the agriculture system and delivers positive and restorative social and environmental outcomes. While navigating this time of crisis, our society is revisiting the role of local communities, and how business and governments can partner more effectively and recognize what is needed for farming and business models to meet this challenge and help farming communities thrive now, and in the future.

THE KEY TO SUCCESS: UNLOCKING COLLABORATIVE ACTION

Transformation of the regenerative agriculture system in the US will require ongoing collaboration among uncommon partners — seasoned regenerative agriculture practitioners who have deep experience working amidst the complexity and ambition required to deliver regenerative systems, and incumbent agriculture system stakeholders with resources and expertise to drive transformation across the country. Currently, small practitioners often collaborate and learn from their peers, and large businesses and funders work together toward shared goals, but there is rarely overlap or interaction between the two approaches. This is a significant gap at present, preventing the scale of transformation required, and will be a lynchpin component of any future action.

Equally, more collaborative learning across sectors — from food to fashion to financial services — will not only empower farmers to transition to regenerative practices but will help to address shared vulnerabilities and interdependencies.

We think about driving forward collective impact to address the leverage points identified throughout this report, it is important to keep in mind that effective regenerative agriculture farms are highly context-specific. Some techniques are unique to a particular crop or farming method, while others are more suited to particular geographies, climates and soil types. Therefore, the leverage points for scaling regenerative agriculture need to be activated at different scales — some nationally and some within a regional context.

Any mechanism for enabling collaboration must support coordination at both levels, in partnership with existing regional networks that are working on scaling regenerative agriculture.

We want to thank the Walmart Foundation for providing the funding to enable this unique collaborative effort, bringing together a diverse representation across the agriculture system. This process revealed the untapped potential in the US to drive forward the win-win opportunity of viable, profitable and regenerative business models. Our aim with this project is to galvanize collective action by bringing together diverse and sometimes siloed voices to develop a shared diagnosis of the barriers to scaling regenerative practices and to build a realistic vision of how we can drive transformational change.

The proof, now, will be in how these recommendations are enacted. With years left to address the climate crisis, we have a window of opportunity to influence the shape of agriculture and food systems in a world changed by COVID-19. Now is the time to chart a path to a thriving future for food and farming in the United States.

To learn more and explore how your organization can help transform the agriculture system in the United States, please contact Mary McCarthy at m.mccarthy@forumforthefuture.org.

To find out more about Forum for the Future's work on Sustainable Nutrition visit www.forumforthefuture.org/Pages/Category/food



ACKNOWLEDGMENTS

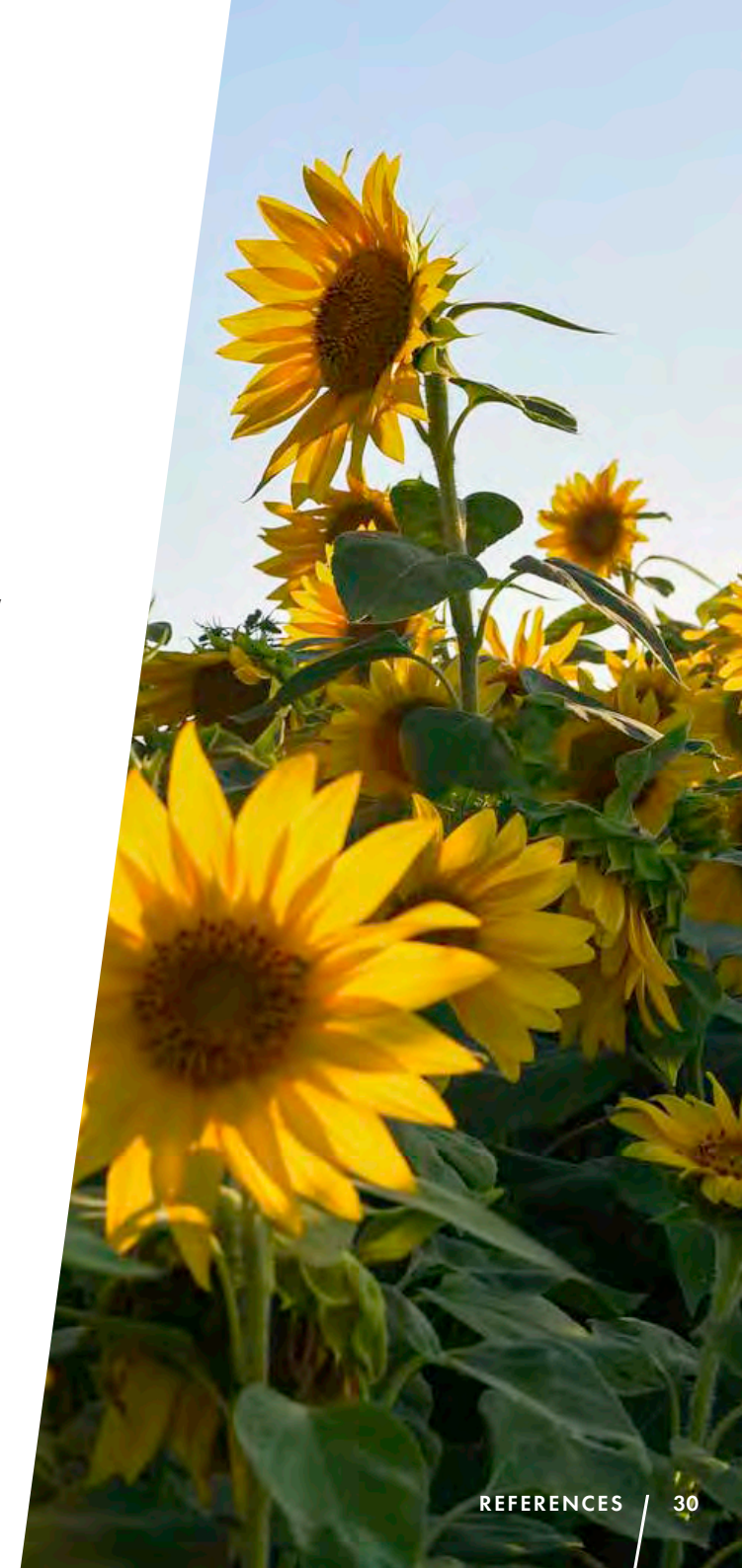
We would like to thank the Walmart Foundation for making this work possible through their generous support. We would also like to thank all interviewees and workshop participants, and especially the following participating organizations for their valuable input.

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|---|---|--|-------------------------------------|
| <i>Ben & Jerry's</i> | <i>General Mills Inc.</i> | <i>Patagonia</i> | <i>The Walton Family Foundation</i> |
| <i>Blossom Hill Winery</i> | <i>Heifer USA</i> | <i>PepsiCo</i> | <i>Thread Fund</i> |
| <i>Climate Collaborative</i> | <i>HowGood</i> | <i>Puris Proteins LLC</i> | <i>Unilever</i> |
| <i>Corteva</i> | <i>Indigenous Food and Agriculture Initiative</i> | <i>REBBL</i> | <i>Walmart Foundation</i> |
| <i>Conservation International</i> | <i>Indigo Ag, Inc</i> | <i>Regenerative Agriculture Alliance</i> | <i>WBCSD</i> |
| <i>Croatian Institute</i> | <i>International Platform for Insetting</i> | <i>Regenerative Design Group</i> | <i>WIT, LLC</i> |
| <i>Dow Europe</i> | <i>Kering</i> | <i>Regenerative Organic Alliance</i> | |
| <i>Ducks Unlimited, Inc.</i> | <i>McDonald's Corporation</i> | <i>Rodale Institute</i> | |
| <i>Eileen Fisher</i> | <i>National Young Farmers Coalition</i> | <i>SAI Platform</i> | |
| <i>Environmental Initiative</i> | <i>Native American Agriculture Fund</i> | <i>Savanna Institute</i> | |
| <i>Midwest Row Corp Collaborative (MRCC)</i> | <i>Nori LLC</i> | <i>Sustainable Food Lab</i> | |
| <i>FAI Farms Ltd</i> | <i>NSF International</i> | <i>Textile Exchange</i> | |
| <i>Farmland LP</i> | <i>OP2B</i> | <i>The Nature Conservancy</i> | |
| <i>Foundation for Food and Agriculture Research</i> | | | |

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APPENDIX

BARRIERS TO SCALING REGENERATIVE AGRICULTURE

LANDSCAPE

Consumer demand for regenerative products is low

Organic agriculture is currently the best proxy for regenerative agricultural practices in the mainstream market, and while it has grown significantly it still only represents 4% of US food sales.¹⁷ Outside of the organic certification there are many other agriculture practices that represent significant steps toward regenerative agriculture (for example, no-till or cover cropping) but due to the limited recognition in the market and lack of consumer awareness, farmers often do not see a change in price. The lack of consumer demand for regenerative products also means it is more difficult to make the business and investment case for the changes needed. Currently, businesses using regenerative approaches for their supply chains do so as a pathway to meeting their sustainability goals, rather than for a strong commercial pull.

Regenerative agriculture adds complexity to current ways of working

Switching to regenerative practices will often require farmers to significantly change their usual way of working, with a return toward more natural systems adding complexity. A successful transition may well require new equipment, farming methods, multiple

crops, and a move away from high input production practices. Some farmers may need to change their approach fundamentally and would need to offset a conventional means of insurance through increased yield provided by fertilizer outputs. Equally, this shift directly challenges the business model of many ag retailers and agribusinesses, which relies on the annual sale of seed, crop protection, and fertilizer. Other parts of the system would also have to adapt to the added complexity of regenerative farming systems from procurement to aggregation and distribution. This shift in ways of working may also deter individuals from entering and engaging in the regenerative agriculture system.

Higher yields and 'increased efficiency' remain the default measures of success

Agricultural success is currently measured in 'volume of output' (bushels per hectare) rather than 'value-based outcome'. The primary goal of industrial agriculture is to generate short-term financial value. Over time, the pursuit of this goal has led the industry to ever-increasing inputs of synthetic fertilizers and pesticides, supported by extensive irrigation networks, without consideration for the long-term impacts on the ecosystem services that underpin the whole system. The fundamental measures of success and stakeholders' understanding of the goals of the agriculture system would need to shift under a regenerative paradigm.

Finance, public health, and agriculture systems operate in silos

Agriculture programs and stakeholders are often siloed from the finance and public health systems, which generally leads to a lack of understanding of the importance of a regenerative, thriving agriculture system among potential allies. For the public health system, there is a lack of awareness and research around the interconnection between soil health, water quality, and thriving rural communities and many of the key challenges facing public health institutions. For financial institutions, the ways in which industrial agriculture has increased the risk, and reduced the resilience of farming institutions is only starting to be understood and captured. Influential coalitions between public health and financial systems have the potential to advocate for and invest in solutions to scaling regenerative agriculture.

Regenerative agriculture goes against many cultural and community norms

Incumbent conventional farmers exploring adopting new regenerative practices often run into local community culture that is not supportive. This might look like the different language used to describe climate change and the shifts in growing seasons farmers are experiencing. Or the negative impact peer to peer influence farmers feel if their farm begins to look different than their neighbors'.

REGIME

Transparency of information available throughout the supply chain is insufficient

Depending on the product or commodity, it can be very difficult for companies to trace existing sourcing back to the farm level to implement strategies to support farmer transitions to regenerative agriculture. Looking outside of the existing supply to current regenerative farmers, many companies struggle with consistency from new producers.

Current policy and regulatory frameworks are not supportive of regenerative agriculture

In the US, the 2018 Farm Bill has been developed over decades and extends far beyond the specific sphere of agriculture. To date, most changes in support of regenerative agriculture come in the form of increments. Yet federal, and most state and local, regulatory frameworks rarely endorse — never mind actively support — the adoption and scaling of comprehensive regenerative practices.

Use of metrics and data to measure impact are inconsistent

Access to data and metrics on the ecological impact of regenerative agricultural approaches (for example, soil health or biodiversity) is currently fraught with difficulties. Best practice for measuring the success of regenerative agriculture remains unstandardized, using different datasets and measurement techniques. Measurement is often expensive and time-consuming,

and once the data has been collected, ownership becomes a key obstacle. This also means that it is difficult to see the return on investments made in obtaining data, and to get sound information to support the business case for regenerative agriculture.

Lack of land access, long-term land tenure, and supportive landowners

New, young and aspiring farmers who have embraced regenerative agriculture approaches have trouble accessing land to farm. This is in part because of the lack of consistent long-term lease structures and the increasing cost of land driven by competition with developers.

Supply chain infrastructure has been built around intensive specialized systems

Today's logistics infrastructure is fine-tuned to support the specialized, intensive monoculture production so commonplace in the developed world, while sustainability efforts and impact measurement have largely focused on single commodities. The current system assumes a single crop, harvested at scale, and struggles to cater to more diversified production models — yet such models are inherent to the success of regenerative agriculture practices. The lack of alignment both between and within organizations working in the regenerative agriculture space further compounds this issue. Legal, procurement or R&D departments, and cross-industry collaborations would need to work differently together to support a more diversified farming system.

Market incentives, pricing and economics do not support grower and farmworker livelihoods

Over the last few decades, as manufacturing and retail businesses have consolidated, pricing power dynamics have shifted away from producers and growers who are now responsive to prices dictated by buyers. If they make the transition to regenerative agriculture, farmers are still vulnerable to the extraction of value from a marketplace that reflects purely economic signals and is not designed to reward regenerative practices. Farmers adopting regenerative agricultural practices might struggle to find buyers or to secure consistent pricing outside the boundaries of the conventional market.

The agricultural research agenda is not driven by farmer needs

The current agriculture research agenda reflects the global food system — complex, efficiency-driven, and dominated by large businesses. It's top-down approach often leaves farmers in the position of receiving research-based directives, rather than allowing them to drive research priorities. There is a lack of clarity around the long-term impact of regenerative agriculture practices and how to implement them in a context-specific way. Because this is a relatively nascent area, only few impact evaluations, case studies, and pilots exist.

Regenerative agriculture sector is fragmented, without a shared vision and narrative

In recent years, there have been numerous efforts to define or certify the term regenerative agriculture in the US, often coming from differing perspectives. From organic farming, permaculture, and agroecology, through conservation agriculture and resilient agriculture, to carbon farming and climate-smart agriculture, a number of distinct (though frequently overlapping) concepts, reflecting differing agricultural approaches and priorities, have gained traction in different circles. While some adherents of these approaches simply seek to ensure that their priorities are included within the growing regenerative agriculture movement, others think that this approach risks muddying the waters or, at worst, diluting long-standing principles and objectives. This tension is strongest between those who see regenerative agriculture as an extension of agroecological practice (and who explicitly view intensive, industrial-scale monoculture as part of the problem) and those who see the potential for regenerative practices to be introduced across the agricultural spectrum. For individuals and organizations entering the conversation for the first time, the complexities of the regenerative agriculture system can make it difficult to understand how to best support and effect change.

Farmers are not financially rewarded for the additional value they deliver to society

Currently, farmers adopting regenerative practices are not compensated for other value-enhancing activities such as their land stewardship, contribution toward

environmental management, and carbon sequestration. While companies are just beginning to explore new carbon and ecosystem services markets, influencers outside of the agriculture system lack awareness and sufficient evidence about the connection between agriculture and public health outcomes.

Farmers struggle to access funding to support the transition to regenerative agriculture

For farmers who have embraced a transition to regenerative practices, it can take years to see progress, as soils rebuild and regenerative approaches are honed to realize the environmental benefits or economic returns. Certifications also require multi-year investments before providing an economic benefit back to the farmer. Currently, there is a lack of affordable and supportive capital to enable farmers in this interim transition period. Beyond capital, the current short-term financial and legal operating context does not encourage the longer-term view required to transition to regenerative agriculture. Many farmers are working on leased land with annual and/or informal lease agreements — without support from the landowners. There is little incentive to implement regenerative practices over these short-term cycles. Buyers operate primarily on short-term procurement contracts to protect their business costs and, in doing so, pass additional uncertainty and value extraction onto farmers.

Farmers need more reliable, trustworthy information on regenerative agriculture

No uniform regenerative practices can be applied in all geographies and across all crops, which increases the complexity for farmers considering such practices and the volume of information they might have to utilize to successfully run their operation. Some regenerative techniques are relatively well-researched and understood; others are nascent and more experimental. The current trusted sources of information — peers, agriculture extension agents, and ag retailers — rarely have the regenerative agriculture-specific knowledge required to support farmers. For ag retailers, there is often a direct connection between the advice they provide and the products they sell.



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