



REGENERATIVE AGRICULTURE

MARKET SCAN

UNDERSTANDING THE CURRENT STATE AND FUTURE POTENTIAL OF REGENERATIVE AGRICULTURE IN THE UNITED STATES, UNITED KINGDOM, AND GERMANY.

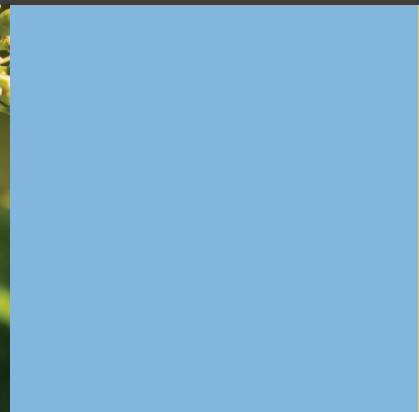


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REGENERATIVE AGRICULTURE: GLOBAL MARKET POTENTIAL

New Zealand sheep and beef farming is built around extensive low-impact grassland grazing systems. We are widely recognised as having one of the most environmentally efficient farming systems in the world. But there is still work to be done.



The sector is committed to playing its part in keeping global warming within the parameters of the Paris Agreement, and through He Waka Eke Noa and the Pastoral Greenhouse Gas Research Consortium is investing heavily in this. The sector has a goal of being carbon neutral by 2050 and is already a long way towards this objective, by reducing our absolute greenhouse gas emissions by over 30 per cent since 1990.

With New Zealand sheep and beef farms being home to the largest area of indigenous biodiversity outside of the Department of Conservation estate, indigenous biodiversity is hugely important to our sector. 24% of New Zealand's native vegetation is estimated to be on sheep and beef farms - the largest amount of native vegetation outside of public conservation land. Much of this is regenerating native biodiversity and the sector is committed to continuing to build the biodiversity on our farms.

We are also one of the only countries in the world to have developed and instituted national farm level assurance programmes, ensuring the claims we make in market are backed up with verified action on the ground.

However, we know nothing stands still, that globally meat production is under the spotlight around its impact on the environment, and many consumers are questioning or reducing their consumption of meat, with no differentiation between the production systems it comes from. That's why we see the work conducted by Alpha foods here as so important, it highlights a narrative that encourages consumers to think about not just the food they eat, but how it was produced, and given the natural alignment between many of our existing production systems and regenerative agriculture, an opportunity to capture and express how we farm in a way global consumer care about, and will ultimately pay a premium for. We welcome this work as providing the evidence and insight for the sector to move forward in its debate around regenerative agriculture.



New Zealand's global reputation has never been stronger, but in these rapidly changing times it is essential to continue to learn how our consumer values and purchase drivers in our export markets are evolving to remain competitive.

As a wine industry we are proud of having the longest running wine industry sustainability certification programme in place since 1997, and we strive to continually improve. Our industry defines sustainability by setting goals across key focus areas, Water; Waste; Pest and Disease; Soil, Climate Change and People. These focus areas align with the United Nations Sustainable Development Goals. Sustainable Winegrowing New Zealand, our independently certified sustainability programme, sets best practice standards across these focus areas. Programme participants must prove that their practices match these standards to be certified as sustainable. Nonetheless, the wine industry understands that sustainability discourse is always evolving and we welcome research and debate that accelerates continuous improvement.

We are committed to understand the environmental considerations wine drinkers have in our global export markets. Other research studies reveal that there is an increasing environmental consciousness in our major markets that drive consumer choice, and our industry's messaging that we tread lightly on the land to preserve it for future generations resonates well with these audiences. The area of regenerative agriculture continues to gain momentum and exploring how these fits with our industry's current sustainability narrative will be of huge benefit to our industry as we look for opportunities to attract maximum value in a global marketplace. We are excited to have been involved in this research project to be able to provide our industry with insights into what consumers think regenerative agriculture is, and whether they are willing to pay a premium for products that are produced using regenerative practices. We look forward to engaging with the results to ensure better environmental outcomes for our industry.



INTRODUCTION

Beef+Lamb New Zealand (BLNZ) and New Zealand Winegrowers have commissioned Alpha Food Labs (AFL) to create and deploy a study to understand the current state and future market potential of Regenerative Agriculture in food and wine within the United States, Germany and the United Kingdom.



The first phase of this engagement, which began in September 2020, is the creation of the following Market Scan Report to understand the current state of the regenerative agriculture movement from the perspective of food brands, retailers, scientists, producers, foodservice and other leaders and constituents.

The report below is a synthesis of over 50 interviews conducted, as well as key research on the most prominent activities, programs and initiatives to date on regenerative agriculture in the three key countries.

The second phase of this work, following this Market Scan Report, will be focussed on conducting a consumer insights study to understand the attitudes, awareness and behaviours of everyday food and beverage consumers when it comes to food sustainability and regenerative agriculture. This consumer study investigates the degree to which consumers make food choices with sustainability issues in mind and how their awareness of those issues impacts decision making.

As this report describes, the “regenerative agriculture movement” is still nascent, despite many of the methods underpinning regenerative agriculture being well-established and millennia-old. The consumer insights study does not assume that the average consumer will have any meaningful awareness of regenerative

agriculture, so as a result, AFL will be creating prototype communications that attempt to explain to consumers what regenerative agriculture is and why it is valuable. Learnings from this exercise will ultimately fuel future efforts to build a stronger consumer-targeted narrative for regenerative agriculture.

The findings in this report and the subsequent consumer insights report are meant to provide BLNZ, New Zealand Winegrowers and New Zealand in general with a foundational understanding of the biggest trends, challenges and opportunities in pursuing and scaling up regenerative agriculture.

There is no definitive answer that dictates whether a food producer should invest more time, effort and money into regenerative agriculture, but in the pages that follow, guidance is provided on how one might best join and help advance the movement if the decision arises to do so.

For instance, we heard loud and clear from our expert interviews that the future of regenerative agriculture hinges on the collaborative efforts of farmers, processors, distributors, investors, brands, scientists, policymakers, marketers, the media and consumers to make change happen. No one link of the food supply chain can make it happen alone and New Zealand could be a force in building that diverse coalition.



We observed that while there is no unified single definition of what regenerative agriculture is globally, this creates an opportunity for New Zealand to step forward to craft that definition. Related to this, New Zealand can also set an example for the world on how to work with its farmers and ranchers to build regenerative agriculture certification that provides consumers with confidence and clarity about their food, but also provides flexibility for farmers to manage their operations and achieve positive ecosystem outcomes on their terms.

The regenerative agriculture movement is also a chance for New Zealand to go deeper on communicating to the world the essence of New Zealand agriculture and provide new story dimensions to existing global campaigns such as Taste Pure Nature. Combining this story while seeking additional scientific data on potential connections between ecosystem health in New Zealand and increased nutrient density in the food that grows there would provide a very compelling argument for buying regeneratively grown foods. And above all, designing infrastructure, financing, and training mechanisms to help de-risk farmers' wishing to transition toward more regenerative practices will be a crucial step that New Zealand must take if it wishes to help regenerative agriculture proliferate.

While this report provides examples and case studies of how others have begun to develop their own regenerative agriculture initiatives, no set formula exists for how to pursue regenerative agriculture.

One hallmark of the regenerative agriculture movement is that the on-the-ground growers and ranchers are imbued with increased autonomy and authority to determine how best to regenerate their land. Generally speaking,

regenerative agriculture does not follow the same blueprint as other “sustainability movements” such as the organic or non-GMO standards which roughly say, “if you do X, Y, Z, etc., then you will receive a certification and be perceived as more valuable in the market.” And while a centralized authority may create incentives for food producers to implement regenerative agriculture methods, the spirit of the movement calls for those authorities to define the objectives growers should aim for (e.g., soil carbon, increased biodiversity, etc.) but not rigidly define or mandate the methods by which individual growers will achieve those objectives. The regenerative agriculture movement aims to align growing communities in the shared goal of improving the health of people and planet, but giving growers, farmers, and ranchers the relative freedom to decide how to meet that goal while creating a more collaborative dialogue between those who regulate and buy agricultural products and those who produce them.

At this early stage in the regenerative agriculture movement, there are not yet any meaningful markets, price premiums, or certifications that can allow any food producer to easily start selling regeneratively grown products and quickly be rewarded with incremental revenue from consumers. However, just because these “easy” price premiums do not currently exist, it does not mean food producers cannot work to advance the proliferation of regenerative agriculture methods and infrastructure in order to create those premiums.

Understanding and addressing the 7 key themes that we have outlined in this document will be useful in crafting a smart regenerative agriculture strategy and increasing the likelihood—but not guaranteeing—that a food producer may create a positive impact for people, planet and profit.

We leave this information in the capable hands of the New Zealand agricultural industry—and the world—to interpret and develop its own approach to regenerative agriculture. The movement is young enough that there is still ample room for New Zealand or other countries to help shape the direction of regenerative agriculture and become a thought leader for others to follow.

The ultimate long-term impact of regenerative agriculture has yet to be determined and must be built by those in the food industry who have the courage and wherewithal to lead and create the future they would like to see.

WHAT IS REGENERATIVE AGRICULTURE?

There is no singular solution to rebalancing our global climate system. Climate change as well as food security, climate resilience and adaptation, biodiversity, and soil health are all interrelated parts of a new global imperative. By now it is universally accepted that many solution ‘wedges’ are required to reduce greenhouse gas emissions and remove carbon from the atmosphere, and regenerative agriculture is a critical wedge that we have no choice but to pursue. The challenge is whether socio-economic and political barriers can be overcome to bring that transformation to scale.

A DEFINITION

Regenerative agriculture, an alternative form of food and fiber production, is a system of agriculture that enhances and restores resilient cultural and ecological systems supported by healthy soils that are rich in organic matter and capable of producing a full suite of ecosystem benefits. Among the most notable benefits are soil carbon sequestration, or taking carbon out of the atmosphere and storing it in the soil, and improved soil water retention. Just as importantly, however, regenerative agriculture focuses on the social and cultural aspects of farming systems, such as restoring rural livelihoods and equitable access to healthy food.

While there is no one “definition” of regenerative agriculture, we use the following framework to guide our understanding of “regeneration”.

THE FOUNDATION

Indigenous and Traditional Knowledge & Worldviews

Starting from the beginning of the story, we must ground our understanding of “regeneration” in an ancestral mindset and worldview that has been around for centuries, where we can see ourselves as part of nature, striving to fulfill our roles as “weavers” that strengthen the bonds between all living beings.

THE BUILDING BLOCKS

Applying Current Scientific Knowledge and Practices in a Regional Context

Rooted in this indigenous worldview, we can build upon ancient agricultural knowledge by applying known practices and approaches through a regional producer-led design process. Allowing each piece of land—its history, people, and soil—to express its own unique essence.

These practices may include:

- Animal Integration
- Holistic Management
- Managed Grazing
- Intercropping
- No-Till Farming
- Compost and Compost Tea
- Permaculture
- Agroforestry
- Silvopasture
- Agroecology
- Cover Cropping
- Perennial Agriculture
- Organic Farming
- Biodynamic Farming



Photo: New Zealand Winegrowers Inc.

THE OUTCOMES

Intersectional Social, Cultural and Ecological Benefits

With this framework, we can realize a regenerative agricultural system that provides healthy, nutrient rich food and fiber for all people, while continuously restoring and nourishing the ecological, social, and cultural systems and connections unique to every place. The intersectional benefits for people and the planet include:

- Water Conservation—Both Infiltration & Retention
- Clean Water
- Healthy Soils
- Rebuilding Topsoil and Degraded Lands
- Increased Biodiversity
- Ecological Resilience
- Carbon Mitigation
- Climate Adaptation
- Nutrient Dense Food
- Reduction in Chemical Toxicity
- Animal Welfare

- Food Security
- Equitable Food Access
- Preserving Indigenous Foodways and Food Sovereignty
- Healthy Rural Economies and Livelihoods

IN SUMMARY

Regenerative agriculture is not about following a checklist, it is about learning which questions to ask, connecting more closely to our local food and fiber systems, and putting farmers front and center and listening to them. It's about honoring the traditional and indigenous wisdom that shape our current thinking on regenerative agriculture, and it's about connecting to and working in collaboration with the land. Our landscapes, our communities, our soils, our health, our future are all interconnected and will require a new regenerative path forward.

OVERVIEW: SEVEN KEY THEMES

The most significant findings from this research effort have been distilled into the following seven key themes, which are explored in depth starting on page 20:



Grassroots Movement is Leading, Brands Following, Consumers Lagging Behind:

Regenerative agriculture is experiencing rapid acceleration, faster than we have seen the organic movement take root globally.



Healthy Soil, Healthy Food, Healthy People Continuum Will Be Key:

The increase in the nutrient density of regenerative agriculture will be a tipping point for many in the proliferation of the movement, especially for consumers.



A Unified Narrative is Needed: Highlighting the Multi-Benefits of Regenerative Agriculture:

One of the main challenges to realising a full transition to regenerative agriculture is that “regenerative” itself lacks a clear definition.



Re-Investment Necessary in Market and Supply Chain Infrastructure Gaps:

The last mile challenges and gaps in infrastructure to support regenerative agriculture are significant.



Certification Catch-22:

Many stakeholders are both weary and wary of certifications for regenerative agriculture, yet consumers find certifications useful.



De-Risking the Transition for Farmers:

For regenerative production to take root in farming communities, we need to support and provide farmers with the tools and resources necessary to embrace regenerative practices.



Regenerative Agriculture is Local:

One of the key principles of regenerative agriculture is the ability to express the essence of place.



CONTEXT & CULTURE OF REGENERATIVE AGRICULTURE

The origins and current zeitgeist of regenerative agriculture in the United States, United Kingdom and Germany.

According to *Food System Investing in a Regenerative Economy*,¹ the first written record of the term “Regenerative Agriculture” was in 1979 by Medard Gabel. Soon afterward, in 1983, Robert Rodale, of the Rodale Institute, began using the term, and led the creation of the “Regenerative Agriculture Association” sometime in the 1980s. They published at least one book, Booker T. Whatley’s *Handbook on How to Make \$100,000 Farming 25 Acres*, and began promoting early ideas about regeneration alongside their work on organic farming. Sometime after Rodale’s unexpected death in 1990, the Rodale Institute dropped the term, focusing on promoting organic agriculture for more than 20 years. After the permaculture community and several other organisations, especially Darren Doherty of Reagrarians, Terra Genesis International, Armonia LLC and Biological Capital, started using “Regenerative Agriculture” between 2009–2013, the Rodale Institute reclaimed the term in 2014 in a modified usage that they continue today: “Regenerative Organic”.

Today, more and more institutions, corporations and growers are becoming interested in regenerative agriculture all across the world—particularly in the past two years alone.

With partners like Patagonia and Dr. Bronner’s, the Rodale Institute expanded its work in regenerative agriculture and launched a Regenerative Organic Certification structure in 2018, aiming to build the movement off of existing organic standards. Nonprofit coalition Regeneration International has 250 global partners, consisting mostly of sustainably driven organisations and companies. Meanwhile, there are regenerative agriculture Facebook discussion groups with more than 31,500 members.

Pioneering regenerative farmer Gabe Brown recently joined with fellow pioneers Ray Archuleta and Dr. Allen Williams to form Understanding Ag, LLC, a regenerative agriculture consultation service. The group partnered with General Mills to help oat producers implement regenerative practices like no-till, crop rotation and diversification, integrating cover crops and, when possible, livestock. Additionally, the group collaborated with the filmmakers of the 2020 documentary, *Kiss the Ground*. Creating much buzz, General Mills announced

a commitment to bringing regenerative agriculture practices to 1 million acres of farmland by 2030 (about a quarter of the land from which it sources ingredients in North America) and achieve net zero emissions by 2050.

Globally, in 2018, the government of Andhra Pradesh, India, launched a plan to transition 8 million hectares of land from conventional agriculture methodology to Zero-Budget Natural Farming by 2024—India’s first 100% natural farming state—which means they will eliminate the use of synthetic chemical agriculture. The “4 per 1,000” initiative, launched by French Minister of Agriculture Stéphane Le Foll at the 2015 United Nations Climate Change Conference, includes nearly 450 partners in the public and private sectors. The ambition of the initiative is to encourage stakeholders to transition toward a productive, highly resilient agriculture, based on the appropriate management of lands and soils, creating jobs and incomes, and hence, ensures sustainable development.

Regenerative agriculture has even broken into the online grocery business. Thrive Market, an online membership-based retailer in the United States that places ethical sourcing at the heart of its mission (including the recent addition of five regenerative products to its private label catalog), has pledged to work with Teton Valley farmers to help them convert to regenerative practices. It is also increasing its partnerships with farmers who implement regenerative practices both in the United States and abroad, as well as actively encouraging the brands it sells through its platform to do the same. Blue Apron’s Founder and Former COO Matthew Wadiak recently launched Cooks Venture, an online chicken brand the company says is using regenerative practices to raise poultry.

Progressive grocers like Thrive Market, who serve a sustainably minded consumer, present an early proving ground for regenerative food brands and how to best communicate their benefits. Many of the larger retailers we spoke with, such as Walmart, Waitrose and Marks & Spencer, were in various stages of early research into regenerative agriculture and how those products might fit into their supply chains and product assortments.

1 Ethan Soloviev, *Food System Investing in a Regenerative Economy*. Medium, 2020.

Walmart understands that, as the largest retailer in the United States, there are planetary boundaries that impact its supply chains. It is well aware of climate change's impact on its supply chains. In September 2020, the company announced a goal to become a “regenerative company”, aiming for zero emissions across its global operations by 2040.

The idea of “do no harm” is not good enough for them. “Doing good” is a better direction when it comes to examining how their supply chains can potentially integrate more regenerative practices. Public-facing research has already been funded by the Walmart Foundation to support research on soil health, building a more sustainable cotton supply chain, mapping biomass and supporting the global forest watch.

Regenerative agriculture is the new “it” term, quickly replacing “organic” and “sustainable,” particularly in the United States. The challenge is understanding how to better define a clear set of principles and outcomes and then scale them to both local and national levels.

Interest and investment from significant retailers such as Walmart are promising and necessary if they can successfully create positive ecological outcomes across their sprawling global supply chains. Companies such as Walmart have the opportunity to take a leadership role in educating consumers about what regenerative agriculture is.

Other retailers we contacted for interviews, such as Aldi, Amazon Fresh, Whole Foods, Costco, METRO, Rewe and Tesco, declined to comment or were not available for response. Investors are getting in on the action, too. In 2019, there were 70 investment strategies with assets under management of over \$47.5 billion, according to the Soil Wealth Report called *Investing in Regenerative Agriculture across Asset Classes*.² Farmland LP invests primarily in converting conventional farmland to regenerative and organic. RePlant Capital, a new financial services firm based out of Colorado, will deploy \$250 million to farmers transitioning to regenerative or organic practices, with about \$200 million of that going toward loans based on soil health metrics. Delta Institute, a nonprofit focusing on market-based solutions to environmental problems, is working with partners to develop “a disruptive infrastructure” that positions them to unlock substantial capital flows into the regenerative agriculture sector. And Belgium-based Soil Capital offers advisory, management and investment for farmers and organisations looking to develop regenerative agriculture. S2G Ventures, a U.S. venture capital firm, has put out a public call inviting ‘entrepreneurs, co-investors and strategic partners to . . . join [the] mission to catalyze \$10 billion of investment in sustainable food and agtech innovation over the next 3 years to transition to a carbon negative food system’.³

While the context and momentum around regenerative agriculture varies slightly from country to country, one thing is clear: Regenerative agriculture is the new “it” term, quickly replacing “organic” and “sustainable”, particularly in the United States. The challenge is understanding how to better define a clear set of principles and outcomes and then scale them to both local and national levels.

UNITED STATES

The term “regenerative agriculture” is cropping up all over the place in the United States. The annals of the internet are growing almost daily with articles,

2 Electrify, Christi, Joshua Humphreys, Kristin Lang, David LeZaks, and Jaime Silverstein. *Soil Wealth: Investing in Regenerative Agriculture across Asset Classes*. Croatan Institute and Delta Institute, July 2019.

3 Sanjeev Krishnan, ‘10 Billion for Carbon Negative Food Transition’, S2G Ventures, 2021: <https://www.s2gventures.com/post/10-billion-carbon-negative-food-transition>



blog posts, tags and tweets about farmers, corporations and foundations shifting their attention toward regenerative agriculture.

Despite this growth in interest, there remains controversy around specific issues and how to define, measure and scale regenerative agriculture nationally. Many leaders, particularly major fast-moving consumer goods (FMCG) companies, are avoiding any specific definition or use of the term publicly until they have more certainty around what “regenerative” means and how they can back up any claims about the term on their products and marketing.

Some of the more heated issues across the United States debate include the following:

Organic vs. Regenerative

One point of significant debate in the United States concerns the role of herbicides and synthetic fertilisers within regenerative agriculture. While conventional farmers using a regenerative, no-till approach tend to rely heavily on herbicides to manage weeds, organic regenerative farmers rely on a whole suite of other, less chemical and more labor-intensive tools. Proponents of regenerative organic agriculture believe that the organic

standard has been watered down and will not achieve the necessary ecological and social benefits, while others are concerned about splintering support for organic food, which could interfere with what the organic movement worked for decades to get adopted. Many proponents of regenerative agriculture argue that leveraging regenerative practices is an easier way to transition farmers to more ecological practices toward reductions in synthetic input usage.

Integration of Animals

Animals are getting a lot of bad press in the United States. With consumers showing increasing concern over climate change, animals, cattle especially, have become the scapegoat of the moment. According to statistics from SPINS and the Good Food Institute, dollar sales of plant-based meat grew 38% from 2017 to 2019. A report last summer from UBS projected this rapid growth would continue, getting about 18.5 times bigger to become an \$85 billion industry by 2030. For proponents of regenerative agriculture, which often includes and necessitates the integration of animals on the landscape, building a narrative and marketing strategy around the importance and potential ecological and health benefits of animal agriculture will be critical in the year ahead.

EAT, a science-based global platform for food system transformation, made waves in 2019 when it published the *EAT-Lancet Report*, which outlined a “planetary health diet” that called for reducing global consumption of red meat and sugar by half, while over doubling consumption of nuts, fruits, vegetables and legumes by the year 2050. While EAT still maintains the need for reducing global meat consumption, Dr. Fabrice DeClerck, EAT’s science director, said, ‘There is no regenerative agriculture without animal agriculture’. He further explained, ‘We need to recognise that grassland ecosystems have been decimated and removing animals from grassland biomes will produce more harm. So, we need to employ more holistic management as a source of quality protein and biodiversity restoration. Eat less meat, but better’. Regenerative agriculture, including holistic grazing, will be a priority area for EAT in the coming years.

Carbon Sequestration Potential

A growing body of scientific literature, both at the regional and global levels, is identifying the potential that regenerative agricultural practices can play in sequestering carbon, which helps to mitigate climate change, while also making our working landscapes more productive, adaptive and resilient to a changing climate. One recent analysis found that implementing more sustainable and regenerative agricultural practices could mitigate nearly 170 gigatonnes of carbon dioxide equivalent (GtCO₂e) by 2050, while generating a nearly \$10 trillion net financial return, according to the aforementioned Soil Wealth Report.⁴ Other research estimates that regenerative land management practices could provide over one-third of the cost-effective climate mitigation needed to stabilise global warming below 2 degrees Celsius, according to *Healthy Soils to Cool the Planet—A Philanthropic Action Guide*.⁵ Other analyses, however, such as the recent report by the World Resources Institute, *Creating a Sustainable Food Future*,

conclude that the carbon mitigation potential in the food and land sector is, at best, much more modest.

While these debates rage on, most science is in agreement that every year the United States loses approximately 996 million metric tons of soil through erosion, while the societal and environmental costs of mainstream agriculture amount to \$85 billion, according to *Global Sequestration Potential of Increased Organic Carbon in Cropland Soils*.⁶ Additionally, more conventional methods of farming are no longer sustainable for most farmers. In 2019, the number of U.S. farmers filing for bankruptcy rose by 20%, the highest level in a decade, according to the U.S. Environmental Protection Agency’s *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2018*.⁷ The median farm income in 2019 was -\$1,383, a slight increase from -\$1,735 in 2018. These incomes are expected to decline to -\$1,840 in 2020. Farmers in the United States are also among the most likely to die by suicide, compared with any other occupation, according to a January 2020 study by the Centers for Disease Control and Prevention. The study also found that suicide rates overall had increased by 40% in less than two decades.

Compounding these issues, the COVID-19 crisis is hitting the U.S. agricultural sector hard and has revealed the fragility of the United State’s food production and fibre supply chains. The systemic infrastructure the United States has built in most of the country centres around large-scale agriculture that tends to favour commodity systems and large-scale monoculture. As a result, more and more producers find themselves trapped in a “treadmill of production”, growing more and more of select crops for a very massive and undifferentiated global market that often doesn’t care much or pay much for different production systems. Facing these realities, U.S. producers have no room to take on any risk and are increasingly reliant on crop insurance and other forms of

4 Electrify, Christi, Joshua Humphreys, Kristin Lang, David LeZaks, and Jaime Silverstein. *Soil Wealth: Investing in Regenerative Agriculture across Asset Classes*. Croatan Institute and Delta Institute, July 2019.

5 Taylor, Betsy. *Healthy Soils to Cool the Planet—A Philanthropic Action Guide*. Breakthrough Strategies & Solutions, February 2019.

6 Zomer, Robert J., et al. *Global Sequestration Potential of Increased Organic Carbon in Cropland Soils*. Scientific Reports, November 2017.

7 United States Environmental Protection Agency. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2018*. April 2020.



extractive loans or capital that are keeping them in a cycle of more and more debt.

The result of the industrial production system has also had huge implications on human health and the nutrient density of our food, an issue that is increasing in attention. A recent assessment by the Rodale Institute of the nutritional concentrations of 43 crops (mostly fruits and vegetables) revealed a decline in most nutrients. Six key nutrients—protein, Ca, P, Fe, riboflavin and vitamin C—significantly declined between 6% to 38%, according to Rodale’s study, *The Power of the Plate: The Case for Regenerative Organic Agriculture in Improving Human Health*.⁸

In regard to toxicity from pesticides, the most recent U.S. Geological Survey found 70% of domestic and public drinking water well samples to be contaminated with at least 1 volatile organic compound, pesticide or nitrate from human sources and 12% of wells exceeded environmental or human health criteria for at least 1 sample. In 2015, the U.S. Department of Agriculture (USDA) reported finding detectable pesticide residues in 73% of fresh fruit and vegetable samples and 61% of processed fruit and vegetable samples. Two studies in

the International Journal of Agricultural Sustainability examined the external and economic costs of agricultural production in the United States and calculated the U.S. public health costs of this pesticide use at about \$1.1 billion per year, which is based only on acute poisonings plus associated illnesses and cancer. Further human and social costs come from pesticide effects on the neurologic, respiratory and reproductive systems.

UNITED KINGDOM & GERMANY

The Regenerative Agriculture conversations in the United Kingdom and Germany are still in the early stages, as they are in the United States, if not more nascent. Much of the same general tensions exist in Europe as they do in the United States, regarding a lack of a commonly accepted definition, measurement or strategy for scale up.

In both the United Kingdom and Germany, experts to whom we spoke frequently cited American thought leaders such as Gabe Brown, Joel Salatin and others as figureheads in the movement from whom they have drawn inspiration and guidance. While there are some very talented and ambitious regenerative agriculture

8 Moyer, Jeff, et. al. *The Power of the Plate: The Case for Regenerative Organic Agriculture in Improving Human Health*. Rodale Institute, 2020.

practitioners in the United Kingdom and Germany, the United States remains a prominent influence in the global movement.

This report details our conversations with many of the leading regenerative agriculture thinkers and doers in the United Kingdom and Germany. They all face similar challenges that we see in the United States with regard to increasing the adoption and scale of regenerative agriculture. On the demand side, they too experience low to no awareness amongst consumers; additionally, retailers take a “wait and see” approach to integrating regeneratively grown products into their product offerings.

As we discuss later in this report in our spotlight on public policy, Europe’s agricultural industry is heavily supported and influenced by the EU Common Agricultural Policy, which provides subsidies and other forms of support totaling €58.82 billion in 2018, according to the European Commission.⁹ Representing the largest line item in the overall EU budget, it is one of the largest government subsidy programs in the world and the incentive structures it creates has a sweeping influence on how farming is done.

Farm subsidies are currently tied to the number of hectares a farm owns, to the tune of €260 per hectare, according to Utrecht University of Applied Sciences,¹⁰ and they represent approximately 40% of a farm’s annual income, according to Jeanette Cwienk.¹¹ Additional subsidies are available for young farmers and those who practice specific “green” practices, but a major issue is

that, historically, these subsidies have not been tied to producing positive ecological outcomes. This incentivizes farm consolidation and land aggregation, but many of the outcomes and techniques associated with regenerative agriculture have not been rewarded with these subsidies.

However, we are currently at an inflection point on the state of the EU Common Agricultural Policy (CAP), as reform measures proposed in 2018 are targeted to go into effect in 2021 and will create stronger incentives and mandates to achieve a wide range of sustainability goals. The European Green Deal includes a dedicated food strategy called the Farm to Fork strategy, which specifies the new sustainability regulations for farmers. According to the Farm to Fork strategy,¹² these regulations include reducing the use of chemical and more hazardous pesticides by 50%, reducing soil nutrient losses by at least 50%, reducing fertiliser use by at least 20%, reducing the sale of antimicrobials for farmed animals and in aquaculture by 50%, and helping the EU’s organic farming sector to grow, with the goal of 25% of total farmland being used for organic farming by 2030.

There is fierce debate over these sustainability measures and their potential impact on food production, farmer livelihoods and their effect on the environment. And while Regenerative Agriculture has not explicitly been named within the Farm to Fork strategy, the regulations are a first step toward reforming a system away from simply awarding subsidies to farmers based on land ownership.

9 European Commission, The common agricultural policy at a glance. <http://ec.europa.eu>, 2020.

10 Utrecht University of Applied Sciences, NL, True: “80 percent of the European money for agriculture goes to the 20 percent largest farmers.” <https://eufactcheck.eu>, 2019.

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REGENERATIVE AGRICULTURE IN THE WINE INDUSTRY

Examining the current state and future potential
of regenerative agriculture for the wine industry

Photo: New Zealand Winegrowers Inc.

UNITED STATES

In regard to regenerative agriculture, winegrowers are poised to make a significant difference as well. In the United States, however, the interest and implementation of regenerative throughout the wine industry is currently very nascent. Joseph Brinkley, director of organic and biodynamic vineyards for California's Bonterra Organic Vineyards, sees organic and biodynamic winegrowing as a framework to embrace and turn the focus toward regenerative agriculture. The practices share key components such as cover crops, compost, managed grazing, biodiversity and conservation. In partnership with Pacific Agroecology, an ecological consulting firm in Davis, California, Bonterra recently conducted a study to understand how farming methods impact organic carbon capture in soil and plants. The study, published in *Wine Magazine*,¹³ claimed that vineyards farmed with organic and biodynamic methods stored '9.4% to 12.8% more soil organic carbon per acre, respectively, than the conventionally farmed control vineyard'. These and other findings from the report suggest a positive relationship between regenerative farming practices and soils' capacity to hold beneficial carbon underground and provide a pivotal framework for other winemakers to join the growing movement.

Despite the relatively limited adoption of regenerative in winemaking thus far, there are a handful of early adopters leading the way. In Oregon's Applegate Valley, Troon Vineyard, with a property covering 95 acres, recently transitioned from conventionally farmed to a regenerative operation. It became fully certified Demeter Biodynamic with the 2019 vintage. Nearly half the land, 45 acres, serves as vineyards. The remainder is dedicated to apples, grains, vegetables and pollinator habitat, all of it farmed biodynamically. And, while regenerative agriculture is currently regarded as more of an ethos than something to put on a label, some wine professionals have begun to push for a certification process for regenerative farming. One such advocate is viticulturist Jordan Lonborg. He and his team at Tablas Creek Vineyard in Paso Robles, California, have taken part in a pilot program for a Regenerative Organic Certification (ROC).

Mimi Casteel, biologist and winemaker of Hope Well Vineyard in Oregon, has diverged from the natural and biodynamic schools of thought in major ways. Casteel has embraced regenerative practices fully, meaning she never tills, never irrigates and encourages habitat, going so far as to reintroduce wildlife to land that has been bereft of it for decades. She uses a tractor only when necessary. Where Rudolf Steiner, godfather of biodynamics, was mystical, Casteel is scientific. In Casteel's eyes, if you could experience terroir at its most truthful—its most purely reflective essence—she says you would have to rewind hundreds of years because we have been cultivating land too hard and for too long to have any sense of what real place tastes like. 'I don't think we know what a wine tastes like when it's grown with its fully intact system around it. We don't know what it's like to taste wine that is the most naked reflection of its place', she explained, and added, 'I want to know what wine used to taste like, when vineyards were not surrounded by vineyards, but when vineyards were surrounded by wild nature'. Her work is not only an attempt to recapture some elusive flavour, but also to show the wine world that possibility is so close. For Mimi and others across viticulture with whom she is working, if regenerative agriculture can allow for the true terroir and essence of a place to be captured in the wine, then there is a real story to be told here and an advantage in the market to tell this story.

Sonoma-based winemaker Alisa Jacobson, founder of Turning Tide Wines, and vice president of winemaking at Joel Gott Wines, believes the industry should adopt more regenerative agricultural practices. Turning Tide sources its fruit from regeneratively grown vines, and the brand acts as a vehicle to spread the regenerative agriculture message and to create a market path for growers to move toward regenerative agriculture. She feels that many of the early regenerative adopters in wine will come from the ones already doing organics, but she is interested in finding ways to convince the bigger wineries, who may not have even thought of going organic, to adopt regenerative as a way to make a bigger impact on issues like climate change. 'Oregon, Washington and California had pretty bad fires this year, so it's clear that we're really not doing the right thing for the planet...I would like to transition more people into going toward the RA direction', she said.

13 Jill Barth, *Beyond Organic: The Winemakers Leading a Sustainable Revolution*. *Wine Magazine*, 2020.

In November 2020, O’Neill Vintners & Distillers announced it will be conducting a trial to compare regenerative agriculture through organic and biodynamic farming techniques with conventional farming techniques at its Paso Robles-based Robert Hall Winery. ‘While biodynamic and organic farming are age-old practices, we want to examine the effectiveness of carbon sequestration through regenerative farming practices, along with quality and cost determinations’, said founder and CEO Jeff O’Neill in a press release.¹⁴

UNITED KINGDOM & GERMANY

Regenerative Agriculture in Wine Is Nascent in Both the United Kingdom and Germany

As in the United States, regenerative agriculture adoption in the wine industry is nascent in the United Kingdom and Germany. While other certifications and growing methods such as biodynamic, organic and sustainable are more well established, they still account for only a small share of the wine market. This is because of limited education and thus low consumer awareness.

The dynamics of decision making for wine amongst consumers appears to be slightly different than other foods. Wine is an indulgence, and, as such, the decision matrix leans even more heavily toward taste than it does with other foods. This consumer decision dynamic is reinforced by wine media primarily concerned with taste and grower stories rather than unique stories around sustainable practices. Associations such as the United Kingdom Biodynamic Association, however, are seeing the attention that regenerative agriculture is getting in general and are trying to rethink how they communicate in order to showcase their regenerative bona fides, which have been there all along.

Biodynamics & Regenerative Agriculture

In the United Kingdom, biodynamic wine is not terribly well known amongst consumers. Relative to biodynamics, there has been more dynamism and new enthusiasm over the past 12 months for the regenerative agriculture movement.

Nina DeWinter, marketing and supply chain manager of the United Kingdom Biodynamic Association, cited this interest in regenerative agriculture as being driven by the mainstream awareness of consumers and farmers around climate change. According to DeWinter, the biodynamic movement has been considering ways to align its practices, which have always been regenerative at their core, to the larger global regenerative agriculture conversation. DeWinter described biodynamic as the “ultimate” form of regenerative agriculture and asserts that the methods- and outcomes-based principles of biodynamic have included regenerative agriculture from the beginning.

As growers contend with soil health depletion and lower yields, they are exploring new solutions for how to responsibly restore their soil. For many, regenerative agriculture methods are much more attainable than pursuing additional certifications with their higher levels of formal rigor, as in the case of organic or biodynamic.

‘You don’t need certification with regenerative agriculture, while with biodynamic you do. So regenerative agriculture accessibility is more favourable to farmers because of the lack of need for certification’, explained DeWinter. Growers are reluctant to force the issue for certification around regenerative agriculture, as they don’t want to be hemmed in on any stringent measurement standards. Growers practicing regenerative agriculture employ typical regenerative methods on their vineyards, depending on the situation, including introducing ruminants for herb grazing and pasture feeding, low or no-till and cover cropping.

Growers who are practicing one or more of the above techniques are loosely considered “regenerative”, but DeWinter asserted that they are eager for the Biodynamic Association to be more aligned with the regenerative agriculture movement to bring more structure around standards and measurement, but to also help educate growers on regenerative agriculture and biodynamic practices to grow the movement and help heal the planet.

14 World’s First Regenerative Viticulture Study: press release, Nov. 10, 2020: <https://wineindustryadvisor.com/2020/11/10/worlds-first-regenerative-viticulture-case-study>.



Photo: New Zealand Winegrowers Inc.

Sustainable Wines of Great Britain

The Sustainable Wines of Great Britain (SWGB) certification is one of the many new initiatives to have launched in the past year to help establish Great Britain as a world-renowned sustainable wine region.

The SWGB scheme aims to certify winemakers who enact measures to protect vineyard soils, promote biodiversity, minimise pesticide and fertiliser use, reduce water and non-renewable energy consumption, and minimise their carbon footprint. Since the scheme's launch in February 2020, 40% of the approximately 10,000 acres of total vineyard in the United Kingdom have signed up for the sustainable system.

While SWGB adoption has been swift in the burgeoning U.K. wine industry amongst the larger wineries, its chairman, Chris Foss, remains optimistic but understanding that change—both amongst consumers and in the industry—can come slowly. 'Covid has shifted values and made people appreciate nature more', explained Foss. 'This could reconnect people with nature [and raise awareness for sustainability in wine]. But changes in wine consumption habits come slower since it's a more traditional product that should be consumed "as it was grown 100 years ago"'.

The Wine Consumer & Retailer

According to those we interviewed in the United Kingdom and Germany, consumers in both countries for the most part do not understand sustainably grown wine, and virtually no consumer is aware of regeneratively produced wine. Even organic, which has been in the market for many years, is only understood on a very basic level by consumers. A 2018 survey conducted by the Wine Market Council found that "less than one in ten respondents 'regularly' buy organic wine, wine made from organically grown grapes or biodynamically produced wine."

Retailers say that these are the very early days for emerging movements like regenerative agriculture. 'Most people kind of see wine as a natural product, so there's not as big of a distrust around how wine is unsustainable', said Elizabeth Kelly, wine buyer and product developer at U.K.-based food retailer Marks & Spencer. 'Packaging is 40-50% of the carbon footprint for wine, but people aren't really aware about this', she noted, alluding to the fact that consumer awareness around sustainability issues in wine are relatively low.

Over the past decade, food retailers are doing more with sustainability programs at a global level. More often than not, these initiatives are tied to more well-known sustainability issues that their consumer base can easily recognise as being an issue worth dealing with.

Without that recognition from the consumer, it is hard to get the average consumer to pay attention to and potentially pay more for products with ambitious sustainability initiatives.

At Marks & Spencer, Kelly's main focus over the last few years has been vegan wine. The retailer is aiming for 100% vegan wine by 2022 as part of its broader initiative to add more vegan products to its inventory overall.

According to the Marks & Spencer "Plan A" scheme, 40% of its wine is currently certified sustainable, and it hopes to get it to 60% over the next few years. Launched in 2007, Plan A is an internal sustainability scheme designed to work with customers and suppliers 'to combat climate change, reduce waste, use sustainable raw materials, trade ethically and help customers to lead healthier lifestyles'.

Kelly noted that while they haven't seen many wines on the market that are actively touting themselves as regeneratively grown, it might be worth a closer look for the retailer were there to be a larger critical mass around regenerative agriculture wines to choose from.

Connecting Growing Practices to Taste

Both in Europe and the United States over the past decade, younger wine audiences have been gravitating more and more toward the broad and loose category of natural wines. 'Ten years ago, people in their 20s weren't hanging out at wine bars. Now they're packed', said Dani Rozman, winemaker of La Onda wines located in North Yuba, California, according to a *New Yorker* article published in 2019.¹⁵

Viticulture practices often aim to optimise wine grape quality rather than yield, as winemakers seek to bring out the flavours of a specific terroir, while consumers increasingly value sustainable practices in their decision process when buying wines, according to a review published in *The Journal of Cleaner Production*.¹⁶

This connection between growing practices and taste is one that has existed since the beginning of viticulture. While regenerative agriculture is nascent in wine, the industry is well poised to tell a compelling story about how regenerative practices can help address climate change and biodiversity loss, while producing a superior and differentiated product. The customs and language of tasting wine, and the sommeliers who provide the necessary storytelling and education infrastructure that links what happens in the soil to how people experience wine at the table, are necessary ingredients for making an agricultural movement like regenerative agriculture relevant to the average consumer.

This younger generation of drinkers is more attuned to the connection between agriculture and the final product in the glass. The heightened awareness of the cause and effect between things like soil quality and taste provides an opportunity for growers looking for a foothold to educate and evangelise the benefits of regenerative agriculture for wine. A 2018 study by the U.S. Wine Market Council¹⁷ found that, compared to a \$20 bottle of wine with no sustainability claims, consumers would pay an additional \$1 to \$3 more for a bottle that was made from organic grapes, "sustainably" produced or biodynamically grown. While regenerative agriculture claims were not tested in that study, the findings demonstrate that wine consumers are willing to pay a slight premium for a product with some kind of enhanced sustainability claim.

There may be few case studies of how regenerative agriculture wine has succeeded in the marketplace today, but this need not be true forever. If regenerative agriculture is to take flight in the wine industry, it will be because a few, bold growers, distributors, retailers, wine bars and sommeliers decided to lead and build out the regenerative agriculture story in wine from the ground up.

15 Rachel Monroe, How natural wine became a symbol of virtuous consumption. <https://newyorker.com>, 2019.

16 Schäufele, I., and Hamm, U., Consumers' perceptions, preferences and willingness-to-pay for wine with sustainability characteristics: a review. 2017.

17 Wine Market Council Green Study: U.S. Wine Consumer Attitudes Toward Organic, Sustainable, and Biodynamic Production April 13, 2018.

THE SEVEN KEY THEMES

The most significant regenerative agriculture themes that emerged from the research.



The below themes are a synthesis of the current state of the regenerative agriculture movement from the perspective of food brands, retailers, scientists, producers, foodservice and other leaders and constituents across the food value chain.

This synthesis is the outcome of over 50 interviews, as well as key research, on the most prominent activities, programs and initiatives to date on regenerative agriculture in the United States, Germany and the United Kingdom. While there are nuances in how each theme manifests itself in the countries we investigated, all seven themes rang true throughout our research.

The findings have been distilled into the following seven key themes:



Grassroots Movement is Leading, Brands Following, Consumers Lagging Behind:

Regenerative agriculture is experiencing rapid acceleration, faster than we have seen the organic movement take root globally. Producers and activists across the landscape are currently leading the movement, with brands, such as General Mills and Danone, following suit. There still remains much work to be done, however, to engage and bring consumers and policymakers along in their understanding and awareness of regenerative agriculture.



A Unified Narrative is Needed: Highlighting the Multi-Benefits of Regenerative Agriculture:

One of the main challenges to realising a full transition to regenerative agriculture is that “regenerative” itself lacks a clear definition. In the absence of some clear definition and understanding, many fear that the term will be “greenwashed” or co-opted by the industrial agriculture industry and companies, much like “organic” and “sustainable” have been previously subjected to. When attempting to define regenerative agriculture, we must highlight the multitude of benefits that regenerative agriculture offers, including the social and cultural contexts and benefits alongside the ecological

benefits, as well as acknowledge the indigenous roots and worldviews that shape our current understanding of regenerative agriculture.



Certification Catch-22:

Many stakeholders are both weary and wary of certifications for regenerative agriculture. Most agree that for the “regenerative” term to have any real meaning, and to avoid the risk of being “greenwashed”, there needs to be some set understandings and/or definitions of the term, but they also mostly agree that certification is not going to drive the transformation to and adoption of regenerative agriculture. Outcomes-based standards or principles that allow for continued improvement over time and in varying ecosystems will be the most successful, in terms of widespread adoption and impact.



Regenerative Agriculture is Local:

One of the key principles of regenerative agriculture, as described by Ethan Soloviev, the chief innovation officer of HowGood, is the ability to ‘express the essence of place—its irreducible uniqueness or singularity akin to a bioregional fingerprint or terroir—that arises from its socio-cultural-ecological-economic distinctiveness’.

By focussing on the “essence” of each landscape and context, producers can deliver solutions for their unique ecosystem challenges, while delivering healthy food that expresses their distinctive story and stewardship, bringing the consumer even closer to the land and a sense of place.



Healthy Soil, Healthy Food, Healthy People Continuum Will Be Key:

The increase in the nutrient density of regenerative agriculture will be a tipping point for many in the proliferation of the movement, especially for consumers. Experts in the United States, United Kingdom and Germany all believe that soil microbes and the health of the soil have a big impact on the nutritional content of our food. Measuring the nutrient density of foods grown regeneratively and marketing the health aspects of these foods will help consumers begin to correlate the connection between healthy soil and healthy food, which leads to healthy people and communities.



Re-Investment Necessary in Market and Supply Chain Infrastructure Gaps:

The last mile challenges and gaps in infrastructure to support regenerative agriculture are significant. In many countries, the food and agriculture infrastructure is too fragmented in its current state to support regenerative agriculture. Infrastructure in countries like the United States are only set up to support high-yield, pesticide-driven, centralised and monoculture systems. As such, for many supply chains, the whole system will have to be rebuilt or repurposed to support regenerative agriculture at scale, from the ground up—from farm to processing to distribution to consumption.



De-Risking the Transition for Farmers:

Farmers are essential workers within the economy, yet often feel undervalued and unsupported—especially those invested in environmentally and socially responsible practices. For regenerative production to take root in farming communities, we need to support and provide farmers with the tools and resources necessary to embrace regenerative practices. This will include providing farmers with:

1. Regionally specific and trusted technical assistance.
2. Flexible and patient capital during transition and business development.
3. Connections and routes to market opportunities.
4. Ecosystem service payments and incentives that reward farmers stewardship of landscapes and ecological systems beyond profit and yield.



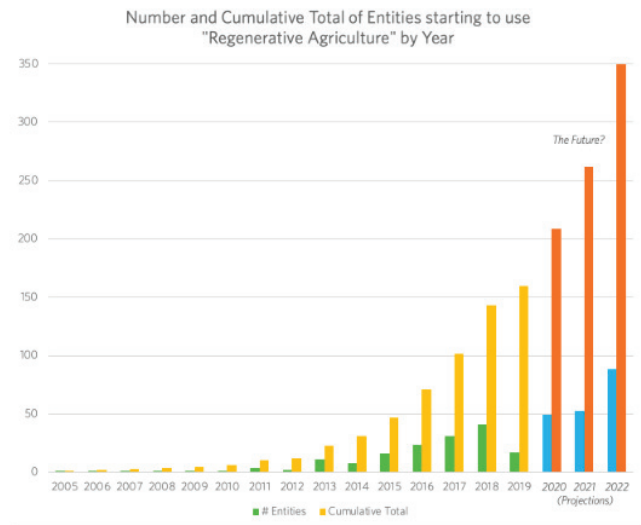
GRASSROOTS MOVEMENT IS LEADING, BRANDS FOLLOWING, CONSUMERS LAGGING BEHIND

Regenerative Agriculture Is Experiencing Rapid Acceleration

The term “regenerative agriculture” originated more than 30 years ago but has recently experienced a meteoric rise in public interest. Global consumer product goods companies and nonprofits are elevating the discipline to greater visibility and discussion. A new Netflix documentary highlighting its potential to rebuild soil, *Kiss the Ground*, is drawing attention to the practice’s climate mitigation potential. Companies, including General Mills, Target, McDonald’s and Cargill, are investing in regenerative agriculture. U.S. President-elect Joe Biden has mentioned paying farmers to sequester carbon in his campaign language, and several U.S. senators have introduced a bill to help farmers generate carbon credits after adopting regenerative practices. And new public and private carbon markets (and one new ecosystem service market) are being formed to issue those credits.

‘Having written about regenerative agriculture for five years now, I’ve never seen such engagement or our stories about this ultra-sustainable method of farming perform so well’, said journalist and editor of AgFunderNews, Louisa Burwood Taylor. ‘Investors are also getting in on the act’. This new interest has led to the Regenerative Food System Investment Forum (RSFI), a new conference launched in

Sept 2019 dedicated to regenerative agriculture investing. The table below, as laid out by Ethan Soloviev and the team at HowGood, depicts the rapid growth we are seeing in using the term regenerative agriculture over the past four years.



Source: Ethan Soloviev, *Food System Investing in a Regenerative Economy*. Medium, 2020.

This explosion of excitement and engagement has great, positive eco-social potential for individuals, farms and

businesses. And there is good reason for all the optimism. Many experts agree that regenerative agriculture practices—including, for example, the use of cover crops, reduced or no tillage and diversified crop rotations—hold great potential to rebuild dwindling organic matter, improve soil health, stave nutrient runoff that causes water pollution and sustain biodiversity. A white paper from the Rodale Institute and the Carbon Underground, entitled “Regenerative Agriculture and the Soil Carbon Solution”, lays out these benefits in detail and aims to define the suite of practices that will rehabilitate ecosystems.

Early Adopters (Producers) and Activists/NGO Partners Are Leading the Movement, with Brands Following Suit

Achieving the transition from conventional to regenerative agriculture will require a major shift in the strategy and behaviour of many producers. For a farmer or ranchers, farming for healthy soils, ecosystems, communities and climate conflicts at many points with conventional agriculture practice. Wider success comes only from the cumulative impact of individual farmers changing their on-farm practices, and resetting how they keep data, manage expenses, sell and borrow.

Across the globe, we are seeing farmers and ranchers lead the way on the transition to regenerative agriculture, with others following their lead.

More than 25 years ago, cattle farmer Will Harris of White Oak Pastures, a 152-year-old family farm in Bluffton, Georgia, rejected industrial farming in favour of his great-grandfather’s methods: Pasture-raising his livestock and using regenerative land management practices to improve his soil, enhance biodiversity and strengthen resilience against pests and disease. The shift boosted carbon storage in the soil to such an extent that it offset at least 100% of the emissions from rearing his grass-fed beef, according to a lifecycle assessment by environmental research firm, Quantis, funded by one of Harris’s customers, General Mills. In Minnesota, farmer Paul Lanoue used crop rotation and rotational grazing for his 180 cows on his 2,700-acre farm, enhancing plant diversity and wildlife habitat. Soil samples allowed him to place just the right amount of fertiliser using GPS technology,

increasing his yield and profitability, he said. In Texas, Jeremy Brown, a cotton, peanut and sorghum farmer, practiced crop rotation, minimum tillage and plants green cover crops on his 4,000-acre farm.

In the past three years alone, from tech startups to major food companies, business leaders are recognising the need to set sustainability targets and invest in practices that support agricultural resilience. Major food companies have emerged, most critically, as making substantial investments in helping farmers adopt regenerative practices. Currently, some of the companies leading the charge in terms of the transition to a regenerative model include: Hormel’s Applegate brand, PepsiCo, JBS, Cargill, White Oak Pastures, Epic Provisions, Organic Valley, Danone, General Mills’ Annie’s brand, Cotswold Seeds and The Ethical Butcher.

General Mills has committed to advance regenerative agriculture practices on 1 million acres of farmland by 2030, as well as committed to achieving net zero emissions by 2050, more than half of which will come from the agriculture practices in its supply chain. Christina Skonberg, senior sustainability analyst at General Mills, noted, ‘Our business case for sustainability overall is inextricably linked to the health of the planet and farming communities. As we look out over the next 50 years, there are a lot of reasons to be concerned about the decline of our planetary system and the decline of farming communities. Looking at the viability of our supply chain, and specifically, the regenerative agricultural work we’ve been doing, there are very few catalysts that make a difference in so many areas all at the same time like regenerative agriculture’.

Danone North America, the largest yoghurt producer and leading maker of organic food in the United States, has committed up to \$6 million over the next five years toward its soil health research program, working with over 700 family farms. This cost includes soil sampling, review of grower yields, grower engagement, data collection and analysis, and field days with farmers to provide training around soil health best practices. In 2020, Danone announced a partnership with RePlant Capital to invest up to \$20 million to support Danone North America’s farmer partners with expenses related to converting to regenerative or organic farming practices. Christina



Owens, the Senior Director of Food and Agriculture Impact for Danone North America, said, ‘As a company that is passionate about climate activism, we are excited to be partnering with RePlant to support our farmers and bring new, innovative financial solutions to address climate change. Providing these loans mitigates the financial stress that transitioning to regenerative and organic farming practices places on our farmers and allows them to focus their energy on driving sustainable agriculture on their farms’. The first of these loans has been provided to Kansas-based McCarty Family Farms, a partner of Danone North America for almost ten years and co-owner of MVP dairy.

Science, Policy and Consumers are Lagging Behind

While early adopters and brands are catching on quickly, the reality is, even educated consumers, have a hard time grasping what regenerative agriculture means. It is difficult for non-farmers to understand topics such as soil health, habitat recovery, nutrient density, crop rotation and carbon sequestration. Beyond consumers, many

policymakers also lack a comprehensive understanding of these topics. Throughout our research, farmers and ranchers identified public policies, such as the United States’ subsidised federal crop insurance program, as one of the single biggest barriers to transitioning to a regenerative system, if not the biggest and most critical barrier. Current subsidies, in the United States, for example, are supposed to provide a safety net to even out the financial ups and downs of crop production and help farmers stay afloat in a competitive global economy. Instead, over the last half century, they have created an expensive and polluting engine of overproduction, which drives down prices, saturates markets and shifts the burden of recouping costs to taxpayers who subsidise farmers’ insurance policies and other relief.

Additionally, the revolution in regenerative agriculture cannot occur without the reimagining of agricultural science. As it is currently practiced, a significant portion of the agricultural science in countries such as the United States are influenced, and even funded by, the agriculture industry, creating significant conflicts of interest and incentives for scientists to focus on incremental changes

to cure symptoms of a broken system, rather than helping to fundamentally reinvent it. The research from the institutions and scientists that is leading the way on achieving better ecological, economic and social outcomes in the agricultural sector is often not making it to farmers, as it is not supported by the industry. The majority of scientists also do not have first-hand experience with farming and, rather, assess their worth using metrics that are generally valuable only to themselves, not farmers; as such, agricultural science is disconnected from the people they are trying to help.

For research to be effective, we must link science to practice, ensuring measures are rooted in core science but actionable on farms and include an understanding of the wider business impacts of changing management, including cost savings and time requirements. There must be a transition from telling to showing using on-farm research sites, including using farmers in generating solutions. These farm sites can be used to demonstrate efforts to policymakers and consumers. Science and field-based projects need to involve insights from social sciences about how best to engage, involve and encourage behavioural change within farming communities.

Key US Distinctions

From dozens of interviews with farmers and ranchers over the past year, a multitude of entry points to regenerative agriculture for U.S. producers came into view. Some producers got into this from an emotional or philosophical breaking point. For them, Big Food no longer looks like a viable calling. Small farms already face a deficit in economies of scale when they compete with big ones. Now, climate shocks mean they are also facing unpredictable yields and storms. Regenerative practices also offer an appealing economic alternative to farmers. Conventional farmers realise, ‘They can’t do it that same way anymore. They’re broke, and they’ve hit the wall’, said Tim LaSalle and Cindy Daley of the new Center for Regenerative Agriculture and Resilient Systems at California State University Chico. ‘So, they’re willing to take a look at [regenerative]’. Regenerative farmer Gabe Brown describes a growing percentage of farmers who are beginning to realise

that ‘they need to do something that’s better for the environment and their bottom line’. That double return can seem far off, but emerging norms can define a path.

A recent study published by Iowa State University in the *Journal of Soil and Water Conservation*,¹⁸ which analysed the literature on adoption of agricultural conservation practices by producers in the United States from 1982 to 2017, found a huge number of variables positively associated with adopting sustainable practices. Some of these variables included farmers self-identifying primarily as stewardship motivated or non-financially motivated, environmental attitudes, a positive attitude toward a particular program or practice, higher levels of income and formal education, engaging in marketing arrangements, and positive yield impact expected.

As wildfires, extreme temperatures, droughts, floods and other climate-fueled disasters plague much of the United States, regenerative agriculture has only grown in appeal. COVID-19 has been especially influential over the course of 2020. COVID-related news reporting on meatpacking plant closings and farmers dumping crops, despite long lines of people attempting to access food banks are leading to concerns about food security across the country. Although both the United Nations (UN) and USDA currently say that the global and national food supply is holding up with few disruptions and only temporary shortages in some locations, the pandemic is pointing out cracks in our supply chains that are raising alarm bells to a much wider audience than ever before. Farmers have suffered the brunt of the hardship this has created so far and their workers are some of the most vulnerable to the health crisis itself. On the other hand, small local growers and ranchers have been scrambling to quickly create and share new methods to survive while filling in gaps in the food supply.

Key United Kingdom and Germany Distinctions

Despite farmers facing mounting ecological pressures around climate change, soil health and biodiversity loss, the regenerative agriculture movement is much

18 L. S. Prokopy. *Adoption of agricultural conservation practices in the United States: Evidence from 35 years of quantitative literature*. *Journal of Soil and Water Conservation*, 2019

more nascent in the United Kingdom and Germany. Similarly, there is no movement among brands, retailers, investors and policymakers to help farmers transition toward and build consumer awareness around regenerative agriculture.

In the United Kingdom, there has been a growing awareness that soil health has been deteriorating and farmers are adopting techniques like no-till to address the issue. Terms and agricultural practices like agroecology and conservation agriculture are gaining momentum. 'The United Kingdom has 750 different soil types, so it's a complex picture that requires a lot of nuance, but at the heart of this is no-till', explained Ellen Faye, founder and executive director of the Sustainable Soils Alliance. No-till is a practice that plays a prominent role in regenerative agriculture and has been frequently associated with and serves as a gateway to regenerative agriculture amongst U.K. farmers. The Groundswell Conference has been a key contributor to growing the no-till movement in the United Kingdom.

In Germany, carbon farming, a broad set of agricultural practices across a variety of farm types that results in increased atmospheric storage of carbon in the soil, has become increasingly popular as farmers, particularly at larger farms, seek ways to create additional revenue streams while being able to tout their focus on advancing sustainable agriculture. Many of the practices related to carbon farming are synonymous with those found in organic farming, regenerative agriculture and permaculture, including composting, implementing silvopasture and agroforestry, no-till, and building riparian buffers, etc. However, carbon farm plans are centred around carbon as the single-most important element on which all other on-farm processes depend, as opposed to the more holistic approach, beyond the carbon benefits, of regenerative agriculture. While many experts we spoke to in the United Kingdom and Germany felt that having carbon farming schemes is probably better than not having them at all, they feared that an overemphasis on carbon farming as a panacea for sustainable agriculture is an overly reductive way to think about regenerative agriculture.

Ivo Degn, co-founder of Climate Farmers, a German nonprofit and marketplace that supports regenerative farmers, noted that while carbon farming certificates

are generating a lot of excitement, some farmers have been trying to game the system. A farmer, for example, could decide to ensure their soil has as little carbon as possible before they start sequestering it in order to get as much credit as possible for adding a lot of carbon after measurement begins. On the other hand, another farmer could have been capturing carbon for a long time and, when measuring incremental carbon capture, the amount captured isn't as handsomely rewarded as the first farmer. This is on top of the fact that monies from carbon farming arrive after the fact, once the farmer has already sunk capital into making the capture happen and may have already released all the carbon that was captured in the first place while still receiving compensation.

In the United Kingdom, Ian Wilkinson, farmer and founder of FarmEd, is helping to build the regenerative agriculture movement through education, training and research so that farmers can understand and implement key concepts of regenerative agriculture, such as minimizing soil disturbance, maximizing crop diversity, integrating grazing livestock and more.

Patrick Holden, farmer and founding director and chief executive of Sustainable Food Trust, a nonprofit organisation dedicated to accelerating sustainable and regenerative farming systems, is working on a multifaceted level to affect change, from influencing and educating policymakers and individual consumers to working to establish metrics that measure positive ecosystem outcomes.

Cathy St Germans hosts regenerative agriculture gatherings, and, in response to COVID-19, she also launched Farm to Feed Us, a nationwide database connecting small-scale, sustainable, regenerative food producers to its communities. These efforts are echoed by groups like the U.K.'s Sustainable Soils Alliance, the goal of which is to improve the political and public understanding and appreciation of soil and its value to a healthy planet and food system. It also recognises the importance of a multi-stakeholder approach, engaging with the media, general public, government and farmers to promote more regenerative farming practices.

Other leaders are emerging on the technology and brand front. Farmer, coder and entrepreneur Abby Rose is leading the movement in a number of ways. Her

technology company, Vidacycle, has built two regenerative agriculture technology platforms: Sectormentor is a software platform that helps farmers produce top-quality grapes whilst minimising inputs and working with natural systems; Soilmentor is an app that helps farmers understand changes on their land above and below ground, in order to make informed decisions about the state of their soil. Her podcast, *Farmerama*, features prominent voices and stories from regenerative farmers, and helps to advance the global conversation around regenerative agriculture. The Ethical Butcher has built an ecommerce platform for sustainable and regeneratively raised beef and will be launching a regeneratively raised ground beef product soon.

In Germany, Benedikt Bösel, founder of Gut & Bösel, a farming organisation that practices agroforestry, holistic grazing and syntropic agriculture, is one of the most outspoken voices advocating for and educating the farming community about the need to shift toward more regenerative agricultural practices. Ivo Degn, co-founder of Climate Farmer, a German platform that enables consumers to find and purchase products from regenerative farmers, works to help regenerative farmers gain access to financing, knowledge sharing and markets. Degn is also co-founder of Project Together, a social innovation incubator that supports not only farmers dedicated to regenerative farming, but others who enable farmers, from certification and measurement to consumer marketing, to media and communications.

European farmers within the regenerative agriculture movement understand that a radical shift in thinking is what is needed to prepare the continent's agricultural industry for a more sustainable future. 'If we really want to revamp the health and sustainability of the planet, you have to get away from the linear monoculture style of farming', said Bösel. 'I looked around for what people had been doing to get a better way of farming and that's when I found regenerative agriculture, which became my task in life to bring these principles to life'.

The radical mind shift necessary to advance the regenerative agriculture movement not only needs to be embraced by European farmers, but those across the entire food supply chain, from policymakers to everyday consumers.

European farmers have operated under the EU's Common Agricultural Plan (CAP), established in 1962 to provide agricultural subsidies of nearly €65 billion annually to farmers based on the number of hectares they own, not necessarily the agricultural and ecological outcomes they produce. Farmers in the United Kingdom and Germany have grown so dependent on these subsidies that it is difficult to implement new paradigms like regenerative agriculture. The shift would drastically change the way they farm without guaranteeing protection from risk and rewards for their efforts.

On the consumer side, as in the United States, regenerative agriculture has very low consumer awareness despite it becoming a trending topic amongst those in the farming and the food industry. Consumers in the United Kingdom and Germany especially have been trained over decades to prioritise cheap food above all else, which has made adoption of things such as organic-certified food difficult to scale big beyond a small set of early adopters. 'There's a bit of hate in the United Kingdom between organic and conventional', said Abby Rose, founder of Vidacycle and host of the *Farmarama* podcast. 'Organic suggests elitism, which is dirty in tWhe United Kingdom'.

In Germany, Jan-Gisbert Schultze, founder and executive chair of the Soil Alliance, an association for regenerative agriculture, cited a similar consumer sentiment tracing back to a post-World War II-era mentality of having cheap and accessible food above all else. 'After World War II, a lot of people suffered from hunger, so once the economy picked up again, everyone was just about eating as a way to recover from the trauma of not having food. Innovation [in food] was all about low prices with good quality', Schultze explained.

Like the holistic mindset required on a farm to implement regenerative agriculture practices, where every component of the ecological and social system is considered in relation to how it affects other components, a holistic approach is also required on a national and global level to scale regenerative agriculture. Not one single constituent in the food supply chain can make the movement happen alone. The future of regenerative agriculture hinges on the collaborative efforts of farmers, processors, distributors, investors, brands, scientists, policymakers, marketers, the media and consumers to make change happen toward a more regenerative future of food.



APPLEGATE

Brands Leveraging their Supply Chains to Bring Regenerative Agriculture to Market

Applegate Farms, LLC., the United States' leading natural and organic meat company, announced in 2019 THE NEW FOOD COLLECTIVE™, a new premium brand that uses pasture-raised meats and small-batch production methods to create culinary-inspired products. The launch featured a line of fresh sausages, which is the first pork to be certified by the American Grassfed Association (AGA).

The AGA standard mandates that hogs have maximum access to the outdoors, allowing them to forage and roam in woods and pasture and that, during the grazing season, they gather most of their food outside. It also requires farmers to develop a pasture-management plan to support biological diversity, natural resources and soil fertility. 'The American Grassfed Association standard

is a leap ahead of anything else out there', said Gina Asoudegan, Applegate's vice president of mission and innovation. 'The organisation's name focusses on pasture – and these new sausages deliver on that. But AGA also stands for no antibiotics, no genetically modified feed and the highest animal-welfare standards. You'd need five separate logos to replace what AGA does'.

The New Food Collective brand sources its meat from small farms in Georgia, Kentucky and Missouri that use regenerative agricultural practices, which are designed to improve soil, water retention and biodiversity. Applegate is also working with the Savory Institute, a pioneer in regenerative agriculture, to assess farm practices and create proof-of-impact metrics that can be shared with



the public. As part of its work with Savory, Applegate is able to collaborate with other companies and brands to ensure that the whole animal is utilised and distribute risk amongst companies working in particular supply chains. For example, Timberland can work with Applegate to off-take animal hides for leather, and pet food companies working with Savory can off-take other parts of the animal not needed by Applegate and Timberland.

The New Food Collective was piloted at select Whole Foods stores in the Chicago metropolitan area in 2020. ‘At Applegate, we want to change the meat we eat, and this launch propels that mission forward’, said Asoudegan. ‘We’re making a big bet on regenerative agriculture as one of the paths to show the world that raising animals and eating meat doesn’t have to be a problem. Animals can and do play a vital role in a healthy food system’. The line offered sweet Italian pork sausage with fennel, sea salt and pepper; hot Italian pork sausage with fennel seeds, chili flakes and cayenne; ginger-scallion pork sausage; and breakfast sausage featuring salty, sweet and spicy notes.

As part of the initial pilot, the sausages sold well, but required a lot of demonstrations and education with consumers. Asoudegan explained, ‘The story of the

product, the producer behind the product, and the work that went into creating this kind of product is hard to communicate on the shelf. People understand the difference between grass-fed vs. factory farming when it comes to beef, but we found they did not understand this when it came to pork. So, we need to find opportunities for deeper storytelling beyond the shelf’.

With these learnings, Applegate is launching a partnership with Amazon Fresh to sell a line of these sausages, allowing them to tell a bigger story through video and social media, as well as access a lot of data from Amazon on how people are responding to and understanding different aspects of the messaging. With this new partnership, Applegate can leverage its supply chain infrastructure to aggregate and process meat from small- to mid-scale producers and Amazon is able to bring the market and the data. As far as incentivizing and supporting producers in the supply chain, Amazon has committed to purchasing all of the product in advance, providing a level of risk sharing with the producers that is critical.



A UNIFIED NARRATIVE IS NEEDED: HIGHLIGHTING THE MULTI-BENEFITS OF REGENERATIVE AGRICULTURE

Without a Clear Narrative, Fears of Greenwashing are Growing

One of the main challenges to realising a full transition to regenerative agriculture is that “regenerative” itself lacks a clear definition. Most proponents agree that regenerative agriculture involves tilling the soil less, or avoiding tilling altogether, as well as planting cover crops, growing a diverse array of crops and managed-grazing practices. But some say these are just a baseline, and should be part of a greater sustainable farming system that goes beyond soil health.

In the absence of some clear definition and understanding, many fear that the term will be greenwashed or co-opted by the industrial agriculture industry and companies, much like “organic” and “sustainable” have been previously used. Stakeholders expressed growing concern around these issues as a result of the recent regenerative agriculture announcements from companies such as Walmart and Cargill. The retail giant Walmart recently touted a plan to become a “regenerative company” as it unveiled a net-zero carbon commitment by 2040. Cargill, for its part, announced a plan to support farmer-led efforts to adopt practices and systems foundational to regenerative agriculture practices across 10 million acres of North American farmland over the next 10 years, as

part of its commitment to reduce greenhouse gas emissions in its global supply chains by 30% per ton of product by 2030.

Responses to these announcements have fallen short of enthusiastic. Environmental watchdog group Mighty Earth, which named Cargill the “Worst Company in the World” last year for, among other affronts, reneging on anti-deforestation promises in Brazil, issued a cautionary statement via campaign director Lucia von Reusner: ‘Cargill has a long track record as one of the most polluting companies in America’, Reusner wrote. ‘And although the company’s announcement ‘suggests they are beginning to recognise the urgency of the problem, [it] has a history of making ambitious promises to address the damage caused by its supply chains but frequently fails to provide concrete implementation plans or details for follow-through.’

Until there is a broader understanding and supply chain of regenerative agriculture, most of the brands, retailers, producers and companies we spoke with are not actually going to be using the words “regenerative” on their products on public-facing materials.



Highlighting Both the Ecological and Social Benefits is Critical

Many people, when talking about and referring to regenerative agriculture, tend to focus on the ecological outcomes, and soil carbon outcomes in particular. The social and cultural outcomes of practising regenerative agriculture, however, are just as critical to incorporate into any narrative, set of principles or definition. When describing and defining regenerative agriculture, many stakeholders pointed to the need for offering solutions to a multitude of issues, including climate change, land degradation, loss of soil fertility, fossil fuel reliance, water retention losses and wildfire exacerbation from non-water retaining soils, nutrient density in our food, rural economic decline, indigenous food sovereignty, pollinator declines/extinctions and pathogen proliferation in food and more.

Stakeholders also urged that the social and cultural benefits must not be divorced from the ecological outcomes in order to truly express regenerative agriculture. As Eric Jackson, CEO of Pipeline Foods, the first U.S.-based supply chain solutions company focussed exclusively on non-GMO, organic and regenerative food and feed, explained: ‘The healthy soil, healthy good, healthy people continuum’ is critical to understanding and defining regenerative agriculture, as well as accelerating its adoption. Dr. David Lezaks, senior fellow at the Croatan Institute, added, ‘What “regenerative” means for farmers and investors remains highly in flux, but broadly it refers to 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’.

Establishing narratives that express the multitude of social and cultural aspects of regenerative agriculture will set certain brands and producers ahead of the field and, ideally, provide a long-term market advantage for them.

Acknowledging the Indigenous Roots of Practices

Regeneration, in its purest, oldest form, has been generationally maintained by individuals, groups and cultures who have been systematically pushed out and are often left out of the narrative. Many of the Black, Indigenous, and People of Colour (BIPOC) leaders and activists are hesitant, and occasionally opposed to, adopting the movement around regenerative agriculture because of the repeated way in which they are left out of the language; additionally, acknowledgement of Indigenous and traditional agriculture knowledge is ignored.

Regenerative agriculture holds great promise for the formation and direction of Indigenous inclusivity. Traditional agriculture and the environmental movement are rooted in the same Western anthropocentrism, in that they both start with timelines and definitions that often do not include Indigenous peoples, practices, and worldviews—and, further, are fiercely opposed to their inclusion.

Regenerative agriculture, still in its infancy, has the power to be more than another oppressive movement. We have an opportunity now to create longevity that begins with Indigenous inclusion, which has much to teach through historical examples of where other fields of study and production have gone wrong. In this way, regenerative agriculture can actually generate change and socio-environmental balance, according to A-Dae Romero Briones.¹⁹

19 A-Dae Romero Briones. *Regeneration—from the Beginning*. Nonprofit Quarterly, 2020.

As Chris Newman, founder of Sylvanaqua Farms, said, ‘In the book *Braiding Sweetgrass*, they describe English as a noun-based language, somehow so appropriate to a culture so obsessed with things. Only 30% of English words are verbs, but in Potawatomi, for example, that proportion is 70%. This statement alone captures a good 80% of what that book had to teach. Wade Davis’ *The Wayfinders* begins with a long chapter about the rapid extinction of languages effectively being bred out of existence in favour of the efficient economic language of English, like in engineered corn displacing the rich genetic multitudes of heritage xàskwim. With the death of each language goes an entirely different way of looking at the world, bringing us ever closer to the English-based nightmare of a world of things—rather than a world of relationships, actions and stories that’s more typical of verb-heavy indigenous languages. People ask with the best of intentions for book recommendations on indigenous agriculture, failing to realise that the nucleus of our sustainability ethic is in how we look at the world, not in specific planting or husbandry techniques. A person can take indigenous methods and with the wrong worldview, destroy the whole world’.

Key US Distinctions

In the US, the movement to define regenerative agriculture is being primarily led by activist and NGO groups. Several of the definitions that exist by predominant groups in the space include:

- **Carbon Underground:**
“Regenerative Agriculture” describes farming and grazing practices that, among other benefits, reverse climate change by rebuilding soil organic matter and restoring degraded soil biodiversity—resulting in both carbon drawdown and improving the water cycle’.
- **Regeneration International:**
‘Farming and grazing practices that, among other benefits, reverse climate change by rebuilding soil organic matter, and restoring degraded soil biodiversity’.
- **Terra Genesis:**
‘Regenerative Agriculture is a system of farming principles and practices that increases biodiversity,

enriches soils, improves watersheds and enhances ecosystem services. By capturing carbon in soil and aboveground biomass, Regenerative Agriculture aims to reverse global climate change. At the same time, it offers increased yields, resilience to climate instability and higher health and vitality for farming communities’.

Many of these definitions, however, still fall short of the more holistic and comprehensive vision for regenerative agriculture being called for, one that also speaks to the social and cultural benefits. Critically, activists of colour and those representing Indigenous communities have even stronger views on the meaning of regenerative agriculture. Activists of colour across the United States are advocating strongly for an approach to regenerative agriculture that prioritises farmers of colour, Indigenous farmers and immigrant farmers and includes, as described by Karen Washington of Black Urban Growers and Black Farmer Fund, ‘a restorative framework based on reparations—that is about relationship to land’. Other activists of colour echoed this perspective, noting the importance of understanding that even within our movement for sustainable or regenerative or whatever, we still often end up whitewashing the story of who has access and who’s losing.

These critiques of the regenerative agriculture narratives in the United States recently came to head with the release of the film, *Kiss the Ground*, available on Netflix. The film, released by the nonprofit of the same name, focuses on the importance of cultivating healthy soils and brings it to a broad audience. The movie doesn’t just dive into the microbiology of soil and soil carbon interactions, it also covers the four main principles of soil health: increasing diversity, minimising soil disturbance, keeping above ground covered and below ground active at all times and animal integration.

Unfortunately, the too-simple message of soil health as the solution to climate change obscures the multi-faceted approach that is needed. Similarly, attributing the destruction of the nation’s soils to a lack of knowledge and individual willpower ignores the legacy of market pressures and federal policy failures that have designed and perpetuated the industrial system we recognise today. BIPOC communities have made strong public statements criticising the film for also failing to recognise

the Indigenous knowledge and practices that tended to soil health long before the first settler colonies existed. Many throughout the movie mention that this seemingly newly discovered climate change solution isn't new, if only because soil and microbes have been interacting for millennia. As director of programs for the First Nations Development Institute A-Dae Romero Briones highlighted, 'Nowhere is it acknowledged the Indigenous people and cultures who have been implementing these practices and thriving long before celebrities were'.

Key UK and German Distinctions

Similar themes of a reluctance to firmly define regenerative agriculture in the United Kingdom and Germany also exist. Virtually all farmers and industry experts we spoke to in both countries preferred to "define" the term loosely around a set of principles that prioritised positive ecological outcomes such as soil health, biodiversity and overall harmony throughout the ecosystem. While many of the themes mentioned converge around similar ideas, there is still no universally accepted definition.

To show the range of ways experts describe regenerative agriculture, the following are how a number of leading regenerative agriculture practitioners and experts in the United Kingdom and Germany chose to characterise what it means to them:

- **Michael Reber, Founder Reber Innovative Landwirtschaft (Germany):**
 'Keep the soil covered; more biodiversity; less tillage, best is no-till, but that's difficult in our region; integrate animals into the field. It's not a formula; farmers have to learn again how the soil functions. The term "regenerative agriculture" has been really hyped in the last year. When people come to me, they don't want the hype of regenerative agriculture, they just want to talk about soil fertility'.
- **Francisco Telles Varela, Scientific Assistant KUHproKLIMA (Germany):**
 'In Europe, the regenerative agriculture term is not there yet [in terms of popularity] but other terms like Agroecology are there. But regenerative agriculture is basically the five principles of disturbing the soil as
- least as possible, using less chemicals, keeping the soil always covered, having the biggest diversity of species as possible, and the integration of livestock'.
- **Ian Wilkinson, Founder FarmED (United Kingdom):**
 'Regenerative Agriculture is about going beyond sustainability and building natural resources. For the soil: build soil organic matter, lock in carbon. This is what it means at its basis'.
- **Abby Rose, Founder Vidacycle (United Kingdom):**
 'Undefinable. It's a mindset. A way of approaching the farm that's about observing the natural systems that you're a part of. Focus on soil health and biodiversity for sure, and seeing how they're linked to everything including your profitability. Building structures (business, social, etc.) in a way that's not extractive to people, communities and land. Regenerative Agriculture is best defined by looking at non-extractive actions; creating abundance! A regenerative system is one that takes a lot of work initially but eventually can run itself and sustain itself. Degenerative agriculture processes on the farm need continuous inputs'.
- **Caroline Drummond, Chief Executive LEAF (United Kingdom):**
 'I define regenerative agriculture as being very much focussed on the soil, in effect restoring and building carbon in the soil and improving soil health, carbon sequestration, biological activity and it includes farming practices like cover crops, planting legumes, minimum or no-till. It's also about rewilding things'.
- **Dr. Fabrice DeClerck, Science Director EAT (United Kingdom):**
 'By sticking to principles not practices, that's the way we ensure good ecological outcomes and how we win this battle. A principles approach where ag is net positive on ecosystem benefits like soil, water, etc. Focussing on ag that not only provides food, but ag that can regenerate the resources from where that food comes from. We don't think that defining regenerative agriculture as just a soil carbon thing is enough, it needs to be a broader outcomes approach'.



While the colloquial definitions of regenerative agriculture are communicated in a multitude of ways, they all cluster around the theme of continuous improvement on the farm, building up the health of soil, increasing biodiversity and using fewer chemicals. So while most experts were very reluctant to define what regenerative agriculture is, they did all have ways to describe the outputs of a regenerative agriculture system.

The reluctance to assign a rigid definition likely stems from the fact that farmers don't want to be hemmed in by a rigid set of activities and methods on the farm in order to achieve these ecological outcomes. Certifications like organic are much more prescriptive about what a farmer can and cannot do on the farm. Virtually all farmers we spoke to took offense to being told what to do on their farms from those on the outside, especially those who are not actively farming.

Nearly all farmers who operate under regenerative agriculture principles, however, agree that while the outcomes they all seek are relatively the same, the farmer should be left to determine the best way for them to attain those outcomes for their specific farm. Every farm is different and one of the tenets of regenerative agriculture is to not have a one-size-fits-all approach to creating positive ecological benefits.

Regenerative agriculture may be best “defined” as a function of its intended results for people and planet. But to make sure farmers stay empowered to manage their farms in good faith toward reaching those results, that definition needs to leave plenty of room for farmers to manage their land as they see fit.

WHAT DOES THIS MEAN FOR NEW ZEALAND?

As there is no holistic, unified definition of regenerative agriculture globally, New Zealand has the potential to take a prominent role in developing a national regenerative agriculture narrative that can serve as a global model. Based on our research, we recommend that this narrative include the following elements:

- **Take a Holistic Approach:**

Highlight both the ecological and social benefits of regenerative agriculture in your narrative.

- **Honor matauranga Māori, te ao Māori and Māori agricultural systems:**

Develop an inclusive and intersectional process with Māori at the outset of defining any set of definitions or principles for New Zealand.

- **Centre Producers as Heroes of the Movement:**

There is a broad recognition that, for regenerative agriculture to proliferate and succeed, the narratives, standards, financing structures, etc. must be producer-led and focussed. Developing producer-led narratives also helps bring the consumer closer to the people who grow their food, helping them to get to know their producers and see them as the heroes on the landscape.

- **Focus the Narrative on Doing More Good, Not Just Doing Less Harm:**

Regenerative agriculture is qualitatively different from so-called sustainable agriculture methods that aim to either “do no harm” or “reduce harm”. Promoting efficient agriculture that “uses less water” or “applies fewer chemicals” falls squarely into this realm. For example, disposable water bottles that use 15% less plastic and thus “do less harm” still damage, to some extent, an already degraded environment. There are limits to what can be accomplished with reducing resource burdens. Even “zero damage” would leave us and our children in a polluted world with eroding, nutrient-diminished soil. Instead, Regenerative Agriculture aims to heal and restore damaged land for the good of all. Focussing on the “do more good” narratives will be a winning strategy.

- **Make the Complex Simple:**

Identify opportunities to distill sets of complicated narratives around regenerative agriculture into marketing pieces that consumers can understand and galvanise around. This might include:

1. Marketing through ingredients, not just finished products. The supply chains do not yet exist to have fully regenerative agriculture products, like value-added products or packaged goods, so companies can start by marketing individual ingredients as regenerative and highlight that one individual ingredient supply chain. Thrive Market, for example, is focussed on individual ingredients like chickpeas, quinoa, and coconut oil, which have distinct, individual supply chains where they can tell the regenerative story of each ingredient.
2. Marketing to food tribes by focussing on one issue or a set of issues that regenerative agriculture touches that appeals to that specific tribe. Blue Nest Beef, for example, developed a bird-friendly narrative for its beef, leveraging the Audubon Society’s well-established, bird-focussed tribe.



BLUE NEST BEEF

Focussing Marketing to Appeal to Individual Food Tribes

Certified by Audubon's Conservation Ranching Initiative, Blue Nest Beef is aiming to fix a broken food system with cattle as its tool and birds as its guide.

Blue Nest Beef delivers 100% grass-fed beef directly to consumers exclusively from bird-friendly U.S. ranches that benefit a renewable food ecosystem, bringing healthy food to consumers' plates and life back to grassland habitats throughout the United States. It was established in 2019 by four co-founders who share the belief that they can help fix a broken food system and reinvent animal agriculture by using cattle as their tool and birds as their guide. All Blue Nest Beef products are sourced from U.S. ranches committed to sustainable ranching practices and, like Blue Nest Beef, are certified by the National Audubon

Society's Audubon Conservation Ranching program. Surprisingly, birds serve as one of the simplest and best resources to tell us which ranchers are using their cattle for good. As it turns out, the little creatures are a key indicator of a healthy ecosystem. Birds need a variety of grasses for nesting, as well as nutrient-rich soil to supply their food chain. That means birds and cows living together is a sign of environmentally conscious cattle grazing. Now, by filling the supply chain gap and working to scale domestic grass-fed beef production, Blue Nest Beef believes it can connect more consumers to quality beef, reward ranchers for doing more of the good things they truly want to do and positively impact the environment using a true, tangible metric: birds.



Grasslands are now the fastest disappearing habitat in the United States, and bird populations are suffering because of it. ‘We’ve lost half the grassland birds in North America since 1970’, said Russ Conser, chief executive and impact officer of Blue Nest Beef. ‘Just conserving isn’t going to be good. We’re going to have to regenerate. And the only way we’re going to get that is if we can convince individual ranchers who control virtually all of the remaining grasslands in North America to do something different’.

For the National Audubon Society, working with cattle farmers is the key to protecting remaining grasslands. ‘The majority of what we have left is managed and operated by cattle ranching and for cattle production’, Marshall Johnson, vice president of conservation ranching at the National Audubon Society. ‘And certainly people don’t realise that that can actually work to be environmentally beneficial’.

Rural, American ranchers receive a significant premium from Blue Nest Beef for their commitment to regenerative grazing practices that allow for plants to recover and regrow more abundantly yielding richer soil, happy cattle, cleaner water and a healthier environment.

‘The Audubon Conservation Ranching Initiative is a win-win for farmers and ranchers as well as birds’, said Conser. ‘By restoring prairie habitats through stewardship of grazing lands, producers who meet Audubon’s stringent requirements are awarded a green “grazed on bird-friendly land” seal. Our seal marks a premium product for consumers who want to know their purchases contribute to sustainable land use’.

Leveraging the bird also appeals to a “tribe” of consumers who already care about birds. ‘What we need is for the millions of people that love birds, and that want more birds, to buy their beef from the ranchers who want to use their cattle to create bird habitats’, said Conser.

Instead of relying on processing plants packed with thousands of employees, Blue Nest processes all of its beef at Lorentz Meats in Cannon Falls, Minnesota, before freezing, storing and shipping orders from a facility in Rochester, Minnesota. Subscriptions vary from monthly, to every six months, and options range from a 10-pound box of ground beef for \$99 to the meadowlark box, which includes 12 to 14 pounds of brisket, premium steak and ground beef for \$234. The company is also expanding its partnerships with conservation and like-minded organisations, including a new national sponsorship with Pheasants Forever and Quail Forever to bring better beef with a bigger purpose to the broader bird-loving community.

Beginning in April, numerous meatpacking plants struggled to keep COVID-19 outbreaks from closing their operations, leaving grocery store shelves bare for weeks and months. Meanwhile, Blue Nest Beef saw sales increase 150% between February and April, with sales projected to grow to 300% through the end of the year.



CERTIFICATION CATCH-22

Many Stakeholders Are Weary and Wary of Certifications for Regenerative Agriculture

There is a growing tension across proponents and leaders of regenerative agriculture, especially amongst producers, around whether certification will play a significant role in driving the adoption of regenerative agriculture and what type of certification will truly allow for the growth of a system that is seeking to constantly improve and regenerate itself over time and across varying ecosystems. Most agree that for the “regenerative” term to have any real meaning, and to avoid the risk of being greenwashed, there needs to be some set understandings and/or definitions of the term, but they also mostly agree that certification is not going to drive the transformation to and adoption of regenerative agriculture. The question, therefore, remains of how certifications will ultimately play a role. While we do not believe they will drive the adoption of regenerative agriculture, they will ultimately come into play for those who need to verify claims and outcomes, which is especially relevant for major brands and food companies that want to make regenerative claims on their products and across their supply chains.

The Carbon Underground, one example of an organisation working on certifications, has partnered with researchers

and corporate partners to roll out a regenerative agriculture standard, the Soil Carbon Initiative. It can be adopted by conventional or organic farmers, and will measure for a handful of specific outcomes, as opposed to the practices they adopt. It does not necessarily require a decrease in the use of pesticides. As another approach, in 2018, a California-based nonprofit – formed by the Rodale Institute, Dr. Bronner’s, and Patagonia—launched the Regenerative Organic Certification (ROC), which includes multiple tiers and a focus on animal welfare and social fairness in addition to soil health. Farmers must already be certified organic to apply, and the standard measures both the practices and the outcomes for soil health. It is an attempt to be a north star for the industry as a certification that encompasses the health of the planet, animal welfare and social fairness.

In addition to ROC and the Soil Carbon Initiative, some groups that are leading the way on certification schemes include A Greener World’s Certified Regenerative Label and The Savory Institute’s Land to Market Program EOVC Certification (Ecological Outcome Verification). A Greener World is one of the only certifiers active in a commodity market working to achieve ecosystem integrity by integrating multiple certifications. Its scope includes improved overall soil health, reduced soil erosion and runoff from farm fields, increased biodiversity and wildlife habitat, and increased soil carbon sequestration.

Savory's EOV certification has been developed in collaboration with leading scientists and researchers around the world, and is an empirical and scalable soil and landscape assessment methodology that tracks outcomes in soil health, biodiversity and ecosystem function. It is currently available in the United States and is just launching in the United Kingdom and Germany. Some certifiers are focussing on very specific supply chains and markets, such as the Audubon Society's work on grass-fed beef in the United States. To combat the negative effects of grassland degradations—and to keep grass on the landscape—Audubon has developed the Conservation Ranching Initiative. This market-based conservation approach offers incentives for good grassland stewardship through a certification label on beef products. For the first time, consumers can contribute to grassland conservation efforts by selectively purchasing beef from Audubon-certified farms and ranches.

Key US Distinctions

As noted earlier, one main point of debate for many leaders who are working on regenerative agriculture across the United States concerns the role of herbicides and synthetic fertilisers within regenerative agriculture. While conventional farmers using a regenerative, no-till approach tend to rely heavily on herbicides to manage weeds, organic regenerative farmers rely on a whole suite of other, less chemical and more labor-intensive tools. There remains an outstanding question across the space of whether any regenerative standard will be built off of organic or if regenerative standards will develop completely independent of organic. Many regenerative advocates feel the organic standard has been too watered down and politicised, that it will be impossible to update and change in any way that includes more comprehensive regenerative agriculture principles, while others argue that we should build upon the decades-long hard work of the organic movement in the United States and not start something new.

As these debates rage on, what is clear is that there is still significant work to be done to ensure responsible members of the food production and consumption chain understand these impacts and align their production and purchasing decisions accordingly. To ensure alignment of these production and purchasing decisions, certification offers one potential pathway. Although

several certification schemes exist, they differ on how certification should be implemented and evaluated and the USDA, which oversees the organic standards, has, so far, largely stayed out of the fray.

The leading regenerative agriculture certifications that a majority of stakeholders pointed to coming out of the United States are:

- **Savory EOV:** Savory measures regenerative practices by assessing a farm or ranch's soil health, biodiversity and ecosystem function. Currently, nine million hectares of land around the world have been certified using this methodology, which Savory calls Ecological Outcome Verification (EOV). The EOV is entirely outcomes based, which many proponents and current participants, including Applegate and Timberland, see as an advantage and the only way to allow for producers in varying environments to engage and implement practices that are relevant to their ecosystem and landscape.
- Rodale Institute's **Regenerative Organic Certification (ROC):** ROC offers certification to regenerative farms based on soil health, animal welfare and fairness to workers. Farms that seek certification must strive to promote regenerative agriculture in three ways: by increasing organic matter in soil, improving animal welfare and providing economic stability and fairness for workers. As it stands now, USDA organic certification (or an international equivalent) is a baseline requirement for ROC certification—a company or farm must at least be USDA Organic certified to earn the ROC label. However, the Alliance— instead of the USDA – will oversee ROC certification. ROC-certified producers must also meet the requirements of one of the existing certifications for animal welfare and social fairness, such as Animal-Welfare Approved or Fair Trade Certified.

Key UK and Germany Distinctions

There are similar tensions around certification in the United Kingdom and Germany. Certifications are arduous for farmers, especially where there is no guarantee that the investment required to secure certification will be justified with increased revenue, while there is still low demand and awareness among consumers, retailers and

brands. In the United Kingdom, there is also consumer mistrust around certifications like organic, with more consumers prioritising support for local food systems.

While there are no regenerative agriculture certifications in development in the United Kingdom or Germany as of yet, we were told that many of the existing sustainability certifications are closely monitoring the growth of regenerative agriculture certifications in the United States. A number of the existing certifications and auditing schemes that are already somewhat aligned with regenerative agriculture principles, and to which a majority of stakeholders pointed, include:

- **Pasture for Life:**
A growing movement of British farmers producing 100% pasture-fed beef, lamb and dairy sold under the “Pasture for Life” certification marque.
- **LEAF (Linking Environment and Farming):**
A U.K.-based certification focussed on “Integrated Farm Management.” The LEAF Marque is a leading global assurance system recognising more sustainably farmed products. It stands for more environmental sustainability and is held by farm businesses that meet its rigorous standards of sustainable farming practice. LEAF Marque certified businesses have been independently verified against the robust LEAF Marque Standard. Waitrose requires that its farmers are LEAF Marque certified. Producers in 27 countries have the LEAF Marque and 43% of fruit and vegetables in the U.K. have it as well.
- **Sustainable Food Trust:**
U.K.-based Sustainable Food Trust is piloting, with government money, a harmonised measurement system that focusses on all metrics commonly associated with desired outcomes of a regenerative agriculture system: soil health, water quality, emissions levels, energy and resource use, crop and livestock usage and social and cultural impact, as well as overall productivity, nutrient flow, profitability and biodiversity. The metrics they will look at essentially follow regenerative agriculture principles and outcomes, but the measurement initiative will not be formally called regenerative agriculture.
- **Demeter:**
Demeter is the largest certification organisation for biodynamic agriculture and is one of three predominant organic certifiers. Demeter’s certification requires biodiversity and ecosystem preservation, soil husbandry, livestock integration, prohibition of genetically engineered organisms and viewing the farm as a living “holistic organism”.
- **Bioland:**
Bioland is the largest organic food association in Germany. Its guidelines are based on seven principles, including: cultivating a circular economy, promoting soil fertility, animal welfare, no pesticides or genetically modified organisms, promoting biodiversity, preserving natural resources and ensuring people have a future worth living in.
- **Naturland:**
Naturland is another German organic food association. At its core is a holistic approach, sustainable management, nature conservation and climate protection in actual practice, preserving and maintaining the soil, air and water, as well as consumer protection.

WHAT THIS MEANS FOR NEW ZEALAND

There is an opportunity for New Zealand to create a national level set of regenerative agriculture principles that could also serve as a model for the rest of the world.

We recommend taking a “big tent” approach that engages producers where they are and helps them develop individual plans for their landscape that enable continued improvement toward a shared set of outcomes, with consistent and ongoing support from the government, as far as technical and financial assistance and incentives. These principles should take all of the following into account:

- Any standards that are developed must be producer-led and -designed.
- Outcomes-based standards or principles that allow for continued improvement over time and in varying ecosystems will be the most successful, in terms of widespread adoption and impact.
- Any standards or principles cannot be static and must allow for regionally specific implementation and innovation, allowing producers to apply the principles in a way that is most effective within their social and ecological contexts.

GENERAL MILLS

General Mills' approach to supporting its supply chain's transition to regenerative agriculture offers a good model for adopting a "big tent" approach. When the company committed to advancing regenerative practices on at least 1 million acres of land by 2030, its first step was to work with its farmers to launch a pilot program on 50,000 acres with 45 oat farmers in North Dakota and the Canadian provinces of Manitoba and Saskatchewan.

Then, after learning from the initial pilot, in January, it added a second effort that focusses on a vitally important ingredient for its Gold Medal flour and Pillsbury product lines, wheat. It includes 24 wheat farmers with operations in and around a 650,000-acre watershed in Kansas that serves more than 400,000 residents in Wichita.

In an effort to make its regenerative agriculture strategy as holistic, inclusive and scalable as possible, General Mills' chose to centre its approach on a set of principles that allow farmers to care for their land and honors the variability across farms and regions, as opposed to specific practices. These principles include keeping a living root year-round, integrating livestock, keeping

the soil covered, building crop diversity, minimising soil disturbance and understanding the context of each piece of land. Additionally, it uses a number of key performance indicators to monitor and gauge the impact and outcomes of their field pilots, including soil health, measured by tracking carbon, microbial life, animal welfare, soil structures and biodiversity through efforts such as bird counts and insect samplings on farms and within the surrounding ecosystems, and the economic viability of the farm itself, as expressed by profitability.

The incentives for the participating farmers include free one-on-one coaching from Understanding Ag, a social network where the farmers can ask questions and share best practices, and an account for farm management software from Agrible. In Kansas, General Mills is also working with farmers to opt into a system being developed by Ecosystem Services Market Consortium, a cooperative that hopes to provide a means by which farmers and ranchers can be rewarded for their "environmental services".



REGENERATIVE AGRICULTURE IS LOCAL

Regenerative Agriculture Should Express the Essence of Each Place

One of the key principles of regenerative agriculture, as described by Ethan Soloviev, the chief innovation officer of HowGood, is the ability to ‘express the essence of place—its irreducible uniqueness or singularity, akin to a bioregional fingerprint or terroir, that arises from its socio-cultural-ecological-economic distinctiveness’. With this in mind, Soloviev and his colleagues insist that a single definition or set of practices would put a wall around the agricultural landscape, separating them from the natural world. ‘Each community of practitioners in each bioregion of the world has the opportunity to re-generate the ecocultural meaning of “regenerative agriculture”. They will do so in a way that is unique to their place, history and whole living ecosystem’, according to Soloviev and Gregory Landua.²⁰

Most stakeholders echoed this sentiment, sharing that regenerative agriculture will vary from place to place. The ecosystem of each farm differs, as well as the cultural and social contexts; as such, no one set of practices can be applied universally. As the team at Rodale described, ‘One simple way to understand regenerative agriculture at the farm level is to think of the farm and soil as a bank

account. Industrial agriculture depletes the account by extracting nutrients, water and human dignity, leaving the farm worse off each year. Regenerative agriculture, on the other hand, adds to the account by gradually improving soil, increasing the farm’s capacity to produce safe and healthy food, and generating real value for farmers over the long term. This principle can also be applied to the livelihoods of farmers and farmworkers. If you focus on these higher-level principles, as opposed to trying to establish and have producers conform to a set of practices, then you will be able to get a majority of producers an entryway to regenerative agriculture and, once they start, there’s no turning back’.

By focussing on the “essence” of each landscape and context, producers can deliver solutions for their unique ecosystem challenges, while delivering healthy food that expresses their distinctive story and stewardship, bringing the consumer even closer to the land and a sense of place.

Key US Distinctions

There are several stand-out early adopters of regenerative agriculture in the United States whose stories are used to capture the imagination of eaters and farmers alike, most notably: Gabe Brown of Brown’s Ranch and Will Harris of White Oak Pastures.

20 Soloviev, Ethan and Gregory Landua. *Levels of Regenerative Agriculture*. Terra Genesis International, 2016.



Key UK Distinctions

In Europe, there are fewer early adopters bringing regenerative products to market. While not explicitly centred on regenerative agriculture, The Ethical Butcher, an e-commerce platform in the United Kingdom that sources meat raised based on high-ethical standards, according to the Pasture for Life Association’s standards as their minimum level of quality. Co-founded by Glen Steven Burrows, an ex-vegetarian, The Ethical Butcher believes that if you focus on farms that ethically raise their animals, many positive ecosystem benefits will follow as a result of this conscientious care.

Burrows stated that ‘a lot of farmers have been doing the right thing already, but they didn’t know it was called

regenerative agriculture’. The Ethical Butcher is planning to dedicate more time and resources to communicating and educating consumers about the virtues of regenerative agriculture, as well as going deeper in trying to express the “essence” of place in its meat products. ‘Taste and Terroir. This was quite a large part of our pitch deck. No one really had the vocabulary for tasting notes for meat, so we ended up describing things in wine terms. I want tasting notes on all our products’, said Burrows. Its website declares, ‘We take great pride in the unique and incredible flavours that our meats possess. It’s important to us that we know what affects those flavours and why you might prefer one region’s meat over another.’

WHAT THIS MEANS FOR NEW ZEALAND

As expressed by Terra Genesis International in its 2016 report, “Levels of Regenerative Agriculture”,²¹ ‘Businesses that discover their essence and bring their strategy, leadership and operations into harmony with it become powerfully secure in the marketplace. Individuals who grasp their essence gain great personal agency and have potent personal value to contribute. A place that knows its essence becomes culturally proud, known by others and its products are sought after for unique qualities. Farms and entities of all scales can regenerate their offerings from their essence, producing new products and services that are in harmony with their history. Therefore, each regenerative agriculture enterprise should seek to identify its own essence and the essence of its place, and to express them fully in its work in the world.

New Zealand has a unique opportunity to do just this at a national scale, providing a first-to-market national expression of regenerative agriculture and, potentially, appending this message onto existing campaigns such as Taste Pure Nature. Additionally, New Zealand has the opportunity to work more closely with the Māori people to find meaningful, equitable and authentic ways of working together to develop a shared vision and approach for how New Zealand can continue to sustain and regenerate the land.

As other countries and regions are slower to adopt a national set of principles, New Zealand will be able to partner with brands, food companies and retailers to fill the growing demand and market for regenerative products with this unique New Zealand expression of regenerative agriculture.

21 Soloviev, Ethan and Gregory Landua. *Levels of Regenerative Agriculture*. Terra Genesis International, 2016



GABE BROWN, BROWN'S RANCH

Gabe Brown came to regenerative agriculture through hardship. In 1991, his in-laws retired, and he took over their 1,760-acre farm outside Bismarck, North Dakota. He used the same practices they had used since the 1950s: tillage, fertilisers, pesticides and fungicides, as well as conventional grazing practices. In high school and college, he said, 'I was taught the current production models. That's all I was exposed to. I learned the conventional mindset—how to use all the fertilisers and pesticides and fungicides, and how to give growth hormones to cattle to get them to grow faster'.

Then, in 1995 and 1996, a pair of massive hail storms destroyed his crops. A blizzard followed in 1997, leading to the deaths of many of the cows the Browns had been relying on to generate income in the wake of their successive crop failures. Brown and his wife steeled themselves and regrouped, only to have a third freak hailstorm destroy their crops once more. In discussing these events and their aftermath, Brown tends to refer to this dark time in his farming life as 'the four years', in the kind of hushed tone typically reserved for myths and legends.

He didn't give up. Having already been introduced to the central ideas of regenerative agriculture, Brown was eager to give them a try—to fortify his weakened farmland by minimising synthetic inputs and restoring ecological balance. Once Brown started to think of his soil not just as a medium for other living things but as a living thing itself, he was stunned by the immediate results. In one early experiment, he planted several one-acre plots with different monoculture cover crops: radishes, turnips, lupine and so on. But on one plot, he planted all of these together in a biodiverse polyculture "cocktail". Over a two-month period marked by very little rain, production was three times greater on the polyculture plot.

By 2010, Brown stopped using synthetic fertilisers and today, his crop yields are 20% higher than the average yields in his county. He's also seen water-infiltration rates skyrocket—from one-half inch per hour, back in 1991, to one inch in nine seconds in 2015. Carbon-retention rates have risen dramatically, too.

Compared with the 10 to 30 tons of stored carbon typically found in conventionally farmed soils of the



Northern Plains, Brown said, ‘On our home place, where we’ve done in-depth, significant testing, our soils have 96 tons of carbon per acre in the top 48 inches’.

‘I tell people that many of the ills we’re seeing today – whether we’re talking too much carbon in the atmosphere and not enough cycling in the soil where we need it, problems with our watersheds, nitrates in our estuaries or in the Mississippi Delta or the Gulf of Mexico or the Great Lakes or the Chesapeake – we can solve all of those’, Brown said. And there’s consequences for human health, too. ‘We no longer have healthy, functioning soil, so we don’t have the ability to move nutrients out of the soil and into plants’, he said. ‘People aren’t getting the necessary nutrition they need from the food that’s being produced’.

Under their trademarked label, Nourished by Nature, the Browns direct market pastured hogs from 25 sows farrowing one-and-a-half times per year. They also direct market eggs from 1,000 free-range laying hens. While the hogs and poultry eat a small amount of grain, other livestock is marketed to consumers as all-grass-finished. A flock of sheep produces grass-finished lambs, and from their herd of 300 beef cows comes some 250 head of young stock marketed directly to consumers as grass-fed beef. The Browns take orders for their meat products on their website at <https://nourishedbynature.us/>.

‘We have drop-off sites for our products in six cities – Bismarck, Dickinson, Washburn, Minot, Jamestown and Fargo’, Brown explained. ‘We deliver to these sites once a month. We also sell our products to several restaurants and through the BisMan Community Food Co-op. We’re selling nutrition and we are selling this more direct connection to the land’, he added. ‘We’re finding that people are increasingly concerned about where their food comes from, and they’re concerned about its healthfulness. They are also hungry for ways to connect more deeply with the land. We focus on healthy soil, because food produced on healthy soil is more nutrient dense. Healthy soil leads to healthy plants, healthy animals and healthy people’.

Brown now spends nearly as much time touring the country and spreading the regenerative agriculture gospel as he does working his land. He’s hopeful that the message is breaking through to a younger generation of farmers. ‘They’re looking for something else, because the production model we’re in is just wrong; it’s broken’, he said. ‘But what’s wonderful today about these younger producers is that they have the experience of all of us—the ones who went before them—to draw upon’. The seeds of regenerative agriculture have been planted.



WILL HARRIS, WHITE OAK PASTURES

Will Harris began trying to return his family farm to pre-industrial methods just because it felt like the right thing to do. Twenty years after he began this process, his White Oak Pastures has become one of America's grandest experiments in the de-industrialization of agriculture.

Harris' 1,250-acre White Oak Pastures has been in his family since 1866, when his great-grandfather, James Everett Harris, came to Bluffton, Georgia. Under the direction of James' grandson, Will Bell Harris, the current Will's father, it became a modern cattle farm after World War II, when traditional methods of farming began giving way to industrial methods.

Then, about 20 years ago, Harris turned back the clock. He slowly began to exchange the methods of large agribusiness corporations for something different. He stepped back two generations to the methods of his great-grandfather, to a way of farming that depends on the keen eyes of the cowboy travelling endlessly through the pastures, vigilant for small changes, determining when it's time to move a herd from one pasture to another, to give the land a rest.

Today, you can visit White Oak Pastures and pick up a handful of earth from anywhere on Harris' 1,250 acres and not see red. Here, there is topsoil. The grasses and legumes that spring up from it feed great herds of cattle, hogs, goats, sheep, rabbits, chickens, ducks, guineas, geese and turkeys. White Oak Pastures has turned itself into one of the largest – if not the largest – pasture-raised livestock operation in the entire nation. It is the only

pasture-raised livestock farm in the nation with its own separate slaughterhouses for hooved animals and poultry. In the process of making the transition back to the old ways, Harris accidentally became something of a celebrity among foodies. A recent story in the New York Times proclaimed, 'If the Southern organic crowd were made up of teenage fangirls, he would be their Justin Bieber'. But the better story, the story that actually raises big questions about the future of the South, is the one about the ecosystem Harris has built – which happens to include more than 100 people with some pretty great tales to tell.

On any given day, White Oak Pastures is home to eight acres of vegetables, an entire pasture devoted to composting and at least 72,000 chickens being raised for meat, 9,000 egg-laying chickens, 3,000 ducks, 2,000 guineas, 2,500 geese, 1,000 sheep, 1,000 goats, 700 cows, 100 hogs, 100 rabbits and 200 turkeys (that said, the turkey population will swell to about 7,000 this month with the arrival of young heritage-breed poult that will be raised for slaughter during the holiday season).

More important, the White Oak "organism", as Harris calls the whole operation, includes 110 employees — a crazy quilt of South Georgia country boys who make good livings as meat cutters and young folks from all over the world bearing degrees from places like Cornell and Harvard. What is weird is that all of them, regardless of background, talk about a common purpose: They want to work on a farm where they can experiment with their theories about how to feed the world without destroying its land.



HEALTHY SOIL, HEALTHY FOOD, HEALTHY PEOPLE CONTINUUM WILL BE KEY

The nutrient density of regenerative agriculture will be a tipping point for many in the proliferation of the movement, especially for consumers.

Experts in the United States, United Kingdom and Germany all believe that soil microbes and the health of the soil have a big impact on the nutritional content of our food. Moreover, the plants we eat and the dirt we come in contact with may also directly fortify our own gut microbiomes. The discovery of this link between soil health and human health has commanded the attention of big food companies, farmers, scientists and environmental organisations, and has sparked a research boom that may soon tell us whether soil microbes are as important to our longevity as daily exercise and a restful night's sleep.

Dr. David Montgomery, a professor of earth and space sciences at the University of Washington in Seattle,

discussed studies around this soil health and human health connection in his 2016 book *The Hidden Half of Nature*,²² and noted that scientists 'have tracked a rapid decline in the mineral content of fruits, vegetables and grains over the past 50 years'. One survey highlighted in the book reported that 'zinc in vegetables had plunged 59%, magnesium fell 26%, and iron tumbled 83%'. A similar analysis, published in the *Journal of the American College of Nutrition* last year, examined 43 crops, comparing present nutrient levels to those recorded in 1950 by the USDA (the USDA has been collecting this data since 1892), and found that protein, calcium, iron, phosphorus and vitamins B2 (a.k.a. riboflavin) and C had all dropped markedly. The "Vegetable Systems Trial", a side-by-side comparison of conventional and organic methods for growing vegetables, has been monitoring nutrient density data of conventional and organic produce and is intended to run for over 20 years, which will provide further insight into the long-term connections between soil health and nutrition.

22 David Montgomery. *The Hidden Half of Nature: The Microbial Roots of Life and Health*. 2016.



Photo: New Zealand Winegrowers Inc.

‘Mineral deficiency is estimated to afflict more than a third of humanity, causing health problems in both developed and developing countries’, Montgomery explained. ‘Mineral elements are essential for hundreds of critical enzyme reactions, and inadequate levels have been implicated in a wide range of maladies’. These include cardiovascular disease, neurological disorders, anaemia, increased risk of infection and depression. Montgomery is exploring these topics further and expanding on this research in a new book set to be released in 2021.

Dr. Rupa Marya, associate professor of medicine at University of California, San Francisco, faculty director of the Do No Harm Coalition and a leading figure at the intersection of medicine and social justice, had this to say in her 2020 article, “The Dirt on What’s Making Californians Sick,”²³ about the human and soil health connection: ‘I believe one key to our health is held not by doctors who take care of us when we are sick but by farmers who can keep us healthier. That key is soil. Soil health is human health, and as such our farmers are critical stewards of our health. We have a major untapped opportunity to improve our health by helping farmers adopt practices that build soil health and eschew synthetic pesticides, herbicides and fertilisers’.

Experts like Montgomery and Marya believe that the healthy soil, healthy food, healthy people connections will be key toward advancing a broader support for regenerative agriculture amongst consumers. Additionally, within this context, there is increasing interest in the ability of nutrient density to open up opportunities and supply chains within the healthcare system, including getting regenerative products onto menus in hospitals, prescription meals for home delivery and beyond. As Gina Asoudegan, vice president of mission and innovation at Applegate, described, ‘This system is so big and has a lot of volume, so it can provide the scale of regenerative agriculture demand that is needed to really move the market. Additionally, healthcare procurement operators

plan meals far in advance and offer flexible menus, which works well with regenerative agriculture in practice. As we think about expanding regenerative agriculture and working with other major food companies to do so, we will be looking closely at opportunities within the healthcare system’.

The Bionutrient Food Association: Establishing Empirical Definitions of Nutrient Density

Established in 2010 with a mission to increase quality in the food supply, the Bionutrient Food Association (BFA) is the preeminent organisation working globally to bring forward the importance of focussing on nutrient density. Bringing forward empirical definitions of nutrient density and through developing a Bionutrient Meter for consumers, the BFA is poised for a much larger role in the food system moving forward. Founder of the Real Food Campaign (RFC), BFA announced in October the expansion of its nutrient density in food research study, which is funded by a grant from Bank of America and several others. Through a partnership with Pipeline Foods, the RFC is adding grains to its survey of nutrition in the food supply. The research will evaluate the connection between the health of the soil in which crops are grown and the resulting levels of nutritional quality, or nutrient density, in the final products at harvest. In addition, the study will examine the connection of carbon sequestration in the soil from the atmosphere.

Over the past four years, the RFC lab has conducted research on the nutrient density of six horticulture crops: carrot, spinach, lettuce, tomato, kale and grapes. This new study will expand that research by comparing organic and conventional grain production, specifically oats and wheat. Pipeline Foods’ role in the project is to identify, recruit and onboard farmers in its network, and provide support to both them and the BFA as the work in the field

23 Dr. Rupa Marya. “The Dirt on What’s Making Californians Sick”. San Francisco Chronicle, 2020.

and lab is being done. The study will be conducted during the 2020 fall harvest season, with samples being analysed throughout fall and winter. The BFA plans to release preliminary study results in the first quarter of 2021. The process includes several steps. First, it plans to document environmental and management conditions on the farm site, which includes soil type, fertility program, varietal and weather data, tillage and cover crop practices. Next, farmers will submit samples of the grain and the soil for assessment. In the lab, the RFC team assesses soil organic matter, biological activity and mineral levels. The final step is to assess the grain for a suite of different elements and compounds. This metadata process allows us to identify correlations between farm management practices, soil health results and crop nutrient density effects.

One exciting research project that BFA is leading is the development of the Bionutrient Meter, a cutting edge point and shoot handheld light meter that can be used to determine quality in crops before purchase. It is

currently working with Near Infrared Spectroscopy, X-ray Fluorescence and Raman Spectroscopy meters to develop its data sets, algorithms and predictive metrics. The objective is to have a relatively inexpensive (\$200-300) handheld meter that a consumer can use to test crops before purchase. It believes that if this level of empiricism is introduced to the marketplace, then the economic drivers governing crop production could be dramatically shifted. The ability to tell quality in the store will also give retailers an incentive to demand quality from their suppliers, which will govern incentives for growers.

Currently, BFA is working with 150 farms to calibrate the meter for 20 crops against more than 180 data points that a farmer can identify about how they produce their crop. It has successfully calibrated the meter for six crops to date, focussed on fruits and vegetables, with the goal of adding grain by the end for 2020. Sustainable Food Trust's Patrick Holden is among one of the farmers working with BFA.

WHAT THIS MEANS FOR NEW ZEALAND

Measuring the nutrient density of foods grown regeneratively in New Zealand and marketing the health aspects of this food will help consumers begin to correlate that healthy soil leads to healthy food, which leads to healthy people and communities. Many see this connection as the inflection point for turning demand toward regenerative agriculture products and ingredients.

New Zealand has an opportunity to take a leadership role in developing the science and data that will further establish this critical connection between soil and human health. One opportunity to do so would be partnering with an organisation such as the Bionutrient Food Association to do grazing-specific research, ultimately giving farmers a market advantage as far as nutrient density. Additionally, partnering within the healthcare system of New Zealand and elsewhere could present a key market opportunity and build demand to the extent needed to fuel a systemic shift toward regenerative agriculture.

As the connection between soil health and the nutrient density of the food produced in New Zealand becomes clearer, this will also provide a marketing advantage, as far as highlighting the health and quality of the food.



RE-INVESTMENT NECESSARY IN MARKET & SUPPLY CHAIN INFRASTRUCTURE GAPS

The Last-Mile Gaps Are Significant

The last-mile challenges and gaps in infrastructure to support regenerative agriculture are significant. In many countries, the food and agriculture infrastructure is too fragmented in its current state to support regenerative agriculture. Infrastructure in countries like the United States are only set up to support high-yield, pesticide-driven, centralised and mono-culture systems. As such, the whole system has to be rebuilt to support regenerative agriculture at scale, from the ground up – from farm, to processing, to distribution, to consumption. The COVID-19 pandemic has further shaken the food system to its core. During the height of the economic shutdown and outbreaks of coronavirus hotspots, conventional supply chains have faltered, both in maintaining supplies of products to customers and pivoting to address new market norms in a time of physical distancing. Yet, the bright spots during this trying period have been the resiliency of local, regional and regenerative food systems.

Regional value chains and regional concentrations of sustainable agriculture operations enable farmers to tap into better markets and prices for food with attributes that consumers are willing to pay for—whether it is labeled organic, local, regenerative or something else.

Targeted efforts to build complete regional value chains can mobilise greater adoption of conservation practices by farmers and economically support communities. Catalytic investment in shared equipment, processing and marketing enables the development of these value chains.

Key US Distinctions

Over 85% of the beef sold in the United States is processed by four companies, leaving the supply chain especially vulnerable to interruptions. Small-scale and pasture-based farmers and the processors have long touted the superior resilience of this alternative system, which they see as returning value to regional economies and respecting animals, workers and the environment. But they have struggled to compete with the largest meatpackers in the United States, who have consolidated animals into concentrated animal feeding operations (CAFOs) and processed them in large plants that utilise fast line speeds and cheap labor, resulting in meat that is significantly cheaper at the grocery store. As a result, meat from independent producers often costs two to five times as much as its conventional counterpart.

Neither food aggregation, processing nor distribution infrastructure is readily or affordably accessible by a



majority of small and midscale, differentiated farmers, ranchers and artisans. The disinvestment in local infrastructure, in favour of a centralised, global supply chain, has been extremely detrimental to small and mid-sized farmers, as well as to long-term consumers.

Without adequate local and regional infrastructure, producers in the United States find themselves taking responsibility for multiple links or entire supply chains in order to move their products into the market, from production, processing and packaging, to market development, sales and distribution. Many regenerative producers are also bringing multiple products to market to maximise revenue streams and/or to meet environmental objectives, further increasing the complexity and number of processing partners they must manage. They work to negotiate pricing in partnership with their buyers and hope to capture more of the retail value of their products by managing the intermediate steps in the supply chain. Unfortunately, the potential for added value capture is often at risk due to inadequate processing and/or distribution channels. We heard from many aspiring regenerative producers that these challenges are frequent, owing to the number of partners, the compartmentalisation of processing steps and associated legal liability, and the complexity of the global supply ecosystems.

Overall, regenerative production and values-based supply chains look like an emerging market in the United States: Highly fragmented, lacking consistent data and

information and dependent on personal relationships. Ultimately, this lack of adequate access to appropriate supply chains is inhibiting the growth and development of a robust regenerative food economy. Clearly needed are models that fill gaps in scale-appropriate aggregation, processing and distribution infrastructure, whether by working with established industry players to create access for smaller producers, or by developing new infrastructure specifically suited to support a distributed, regional-scale system.

COVID-19 has further exposed the cracks in this system and, across the United States, people have been awakening to the fact that independent, local processing and supply chain infrastructure has never been more important. Shutdowns and slowdowns of meatpacking plants in the consolidated, industrial system have led to meat shortages at grocery stores and the euthanizing and disposal of millions of animals. Meanwhile, small and mid-size slaughterhouses, packers and butchers are staying open. In many cases, they're ramping up production. Some great examples in the United States include: Primal Supply Meats in Philadelphia, Ranch Foods Direct in Colorado, Cypress Valley Meat Company in Arkansas, Cream Co Meats in California, and Rettland Farm in Pennsylvania.

Key UK and Germany Distinctions

In the United Kingdom and Germany, where EU farm subsidies provide a large part of incomes for farmers, many farmers are deeply rooted in a system that incentivizes them to grow in size, but not necessarily in positive ecological impact.

German farmer Benedikt Bösel, of Gut & Bösel, noted that many farmers are ‘fighting for their lives and they have no room to innovate and do something different’. He explained that many growers live on the margins of financial stability and that shifting to something like regenerative agriculture is too risky for them to try without support. As in the United States, he explained, ‘German farmers are heavily dependent on export markets and that ‘these kinds of farmers are trapped into that monoculture production system’. This monoculture agricultural system means that large amounts of capital are needed to scale up and ‘the bank is not going to care if you want more animal welfare or something – they just need the debt paid for your big operation needs’, he said. ‘So it’s really hard to get unstuck from this system financially, emotionally and psychologically’.

This mismatch in expectations of returns between traditional investment institutions and expected outcomes of a truly regenerative farming system creates a vacuum for capital tailored to regenerative agriculture operations. Jan-Gisbert Schultze, founder of the Soil Alliance in Germany, noted that many investment funds are ‘stuck in the traditional private equity investment framework: buy a firm, put in a great team, leverage it, sell it’, which seldom has the patience to nurture a regenerative system where positive ecological outcomes can come slowly and don’t always have the kinds of financial returns that a traditional monoculture farming system has. ‘You need to get the people behind you who are culturally aligned first, because then they see things differently and are OK with the non-traditional method of measuring things and assessing returns’, said Schultze.

Part of the challenge lies in how success is measured in a regenerative system versus a conventional industrial agriculture system. Industrial agriculture is rewarded in a very straightforward way where efficiency and scale drive profitability. Many of the negative externalities that come from industrial agriculture—pesticide runoff, declining

soil health, soil erosion, dependence on synthetic inputs, to name a few—aren’t reflected as costs in the profit and loss statements, so profitability is purely measured in dollars, not ecological outcomes.

There is currently no robust way to account for many of the positive or negative environmental externalities in industrial or regenerative agriculture, which causes a disconnect in being able to assign monetary value and attract investment in operations that maximise positive externalities and minimise negative ones. ‘The issue we are dealing with is that we want to measure every little thing’, said Schultze. ‘But by pure observation, you can just see how regenerative agriculture improves the land’, referring to the fact that a lot of the benefits that come with regenerative agriculture reveal themselves in a more qualitative way, with no quantifiable measures that can be monetised.

For Bösel, finding a way to ‘calculate the true cost of externalities is [his] preferred choice to change the financial system’. He added that at his regenerative farming operation, Gut & Bösel, ‘We’re working on trying to get the right data in place so we can monetise things. But we just don’t have it yet. We are not yet where we can say that this is our regenerative agriculture model and here is the associated P&L and balance sheet that accounts for all the ecological benefits they would presumably create’.

Bösel stresses that the agricultural finance community needs to shift toward a place where positive outcomes are rewarded, not just processes. ‘If you have two farms, one dry and one wet, if they both have the same crop rotation, then they both get a cover crop subsidy’, he said. ‘One farm that gets the rain and the cover crop grows nicely, so they get the money and they have great carbon content in their soil. The dry farm doesn’t have a germinating cover crop and then they have to plant it again, and they now have double the cost because their soil is much drier and their needs are different. So if we incentivize one thing blindly like “plant cover crops”, then this doesn’t work in all situations. How do we solve this?’

In the United Kingdom, investors like Will Howard Davies, senior policy advisor, Green Finance at Department for Business, Energy and Industrial Strategy (BEIS), feel that it is a more difficult proposition investing in regenerative



agriculture projects in the United Kingdom because of high land prices. With arable soils in eastern United Kingdom that feature mostly monoculture systems and good yields with cash crops, to the west with wet soils and livestock-dominated fields, Davies said that ‘conditions for farming in the United Kingdom are just so easy and temperate that you can’t really get too many more improvements in yield impact. The land is just too expensive as a result of this’.

Davies continued to say that savvy investors may be better off ‘looking abroad to where you can buy and rehabilitate land that has a much further way to go in terms of creating value financially and ecologically. It might be much better to do a bunch of agroforestry projects in Brazil where you can impact 50 families, have a great story and a greater investment return versus investing in the United Kingdom’.

The size of investment required to transition a farm in the United Kingdom to regenerative may yield products that are too niche to enable mass scale and wider adoption of regenerative agriculture. Davies feels that ‘the expensive T-shirt from Patagonia is a start, but it has got to be more mainstream to move the needle. There still needs to be more demand creation for regenerative agriculture’.

WHAT THIS MEANS FOR NEW ZEALAND

Farm equipment represents the second highest capital investment for farmers. The adoption of regenerative agriculture often requires upfront capital investment, such as new machinery, access to processing and storage equipment and facilities and related services. These capital expenses can create barriers to adopting regenerative farming practices and create significant roadblocks across the supply chain. Financial markets and governments need to better understand and support the adoption of the regional infrastructure required for regenerative supply chains to ensure the affordability of new capital investments.

Some things to consider for ensure the last-mile gaps for regenerative producers are addressed adequately:

- Product storage and processing facilities need to adapt to support greater species diversity and batch sizes from small grains and mixed farming systems.
- Investors, both public and private, need to diligently support organisational and social infrastructure, such as cooperative models, for sharing equipment and facilities at regional levels. A shift to more local production and increasing the share of small to midsize farmers will create the need for farmers to share infrastructure and processing instead of single-farm operations.
- One strategy that BLNZ can consider is developing regional regenerative processing hubs for particular supply chains. This would entail taking a “campus model” approach to invest in the necessary processing infrastructure, starting in four to five key regions that will attract additional investors with more flexible, patient and regional capital.

As an example of this type of approach, Pipeline Foods, the first U.S.-based supply chain solutions company focussed exclusively on non-GMO, organic and regenerative food and feed, is working with the Organic Grain Collaboration (OGC) to address key challenges in expanding the supply of organic grain in the United States. The collaboration is working directly with farmers and other stakeholders across the supply chain in two regions to develop regionally appropriate supply chain infrastructure: Aroostook County, Maine, and in the Northern Great Plains.

Another example is Fibershed’s Regional Fiber Manufacturing Initiative (RFMI), which is focussed on developing a manufacturing system to regionalize the production of textiles, support local economies and contribute to climate solutions in the United States.

The RFMI is engaging experts to identify and address the gaps and design solutions for regional infrastructure to support producers and brands; securing capital and resources for existing supply chain partners; identifying and cultivating supply chain entrepreneurs by offering technical assistance in the fields of engineering and finance; and attracting and providing tailored education to aligned individuals, family offices and investor groups who are interested in supporting a regional fibre manufacturing ecosystem.

The initiative is led by a stewardship committee and informed by five committees of local and international experts to focus on core issues of material production, from soil to fibre; manufacturing, from fibre to fabric; consumer connections, from fabric to wearer; business services, providing enterprise and legal support; and equity and justice, highlighting levers for change throughout the soil-to-soil cycle.



DE-RISKING THE TRANSITION FOR FARMERS

Investing in Regionally Specific Technical Assistance

Farmers are essential workers within the economy, yet often feel undervalued and unsupported – especially those invested in environmentally and socially responsible practices. In order for regenerative production to take root in farming communities, we need 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, revitalise rural communities and create more equitable power dynamics within the agriculture system. Stakeholders from across the system recognise the need to shift more power back into small farms and regional agricultural hubs.

Farmers and growers are extraordinarily busy people, managing complex businesses in a risky, low-margin and ever-changing business environment. This reality makes taking time to learn about and experiment with new management practices a slow and time-consuming process. Without technical assistance, many farmers have neither the resources, time nor energy to learn about, plan, implement and monitor climate-smart practices on their own, much less to do the paperwork

associated with applying for and tracking government-incentive grants. This is especially true for small- and mid-scale producers and historically disenfranchised farmers and ranchers who do not have ready access to paid consultants. Comprehensive and culturally responsive technical assistance – including outreach, education, planning, project design, and application and implementation assistance – acts as the necessary bridge for farmers and ranchers to successfully transition toward regenerative and climate-smart practices. Technical assistance programs take many shapes, including peer-to-peer mentorship programs, farmer network workshops and training, on-farm learning days, farm advisors and consultants and more.

Providing Flexible, Patient Capital During Transition

The range of investment opportunities in more regenerative and sustainable agriculture is vast. A 2019 report by the Delta and Croatan Institutes²⁴ identified \$321.1 billion in assets deployed across 127 strategies in the United States, incorporating sustainable food and agriculture thematically or through investment criteria. Nonetheless, investors have only just begun to unlock

24 Electris, Christi, Joshua Humphreys, Kristin Lang, David LeZaks, and Jaime Silverstein. *Soil Wealth: Investing in Regenerative Agriculture across Asset Classes*. Croatan Institute and Delta Institute, July 2019.

the funding required to transition the agriculture sector to a sustainable future. Significant barriers remain to achieving the level of investment and impact required for agriculture to meet the challenges of the 21st century.

Investment in sustainable agriculture is constrained by several barriers. These barriers include the multi-year timeframe for soil health practices to deliver financial value, the prevalence of mainstream agriculture financial structures that favour conventional practices, a lack of market premiums for sustainably produced crops and a lack of pricing for environmental benefits. Understanding these barriers and how they constrain investment in sustainable agricultural models is essential to developing catalytic solutions that address these barriers.

Conservation practices such as conservation tillage, cover crops and extended crop rotations all have different costs and benefits over time. Some practices entail up-front and/or ongoing costs for seed and new equipment. These practices are considered medium- to long-term investments that typically generate financial benefits to the farm operation over three to five years. Research by EDF and others shows that the upfront costs associated with these practices are typically offset within this three- to five-year timeframe by savings in production costs, crop yield improvements or resilience, and, in some cases, new forms of farm revenue. According to a 2020 report from the Environmental Defense Fund,²⁵ however, the current poor farm economy in many places may hinder a lot of farmers from taking on any additional cost or risk, even when it would pay off in the long term.

To move the field forward at the farm and landscape level, it is critical to develop new loan tools and amplify the access to regenerative capital from ag lenders, government and investors, and partner these financial tools with adequate training and farmer learning networks to implement regenerative practices. Fortunately, many new capital tools and models to do this are being piloted, which provide the right kinds of patient capital, training and market opportunities for farmers during transition and early adopters as they scale their businesses. These types of programs, that couple new financial

vehicles with trusted technical support, have proven to be highly successful in catalysing more wide-scale adoption of regenerative organic agriculture practices and acreage.

Rewarding Ecosystem Services: Ecosystem Service Payments

Agricultural landscapes offer much more value than just the products they grow. Regenerative land stewardship by farmers influences the levels of biodiversity, carbon sequestration, nutrient cycling and water quality, as well as other ecosystem services. Recognising farmers' full contribution to society as land stewards and food and fibre providers can address climate change and strengthen rural communities to thrive both economically and ecologically. Financial compensations for environmental conservation means fundamentally rethinking 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 underpins this opportunity.

Markets for environmental services like carbon sequestration, greenhouse gas emissions reduction, water quality improvements and habitat restoration present an opportunity to compensate farmers for providing these services and offer incentives for them to adopt conservation practices. Innovation is accelerating rapidly in this area, spanning attempts to establish marketplaces to support the voluntary and compliance carbon markets, such as those being developed by the Ecosystem Services Market Consortium and Nori; and efforts to facilitate a range of voluntary transaction types, such as Regen Network.

As another example, Indigo Agriculture, a company dedicated to harnessing nature to help farmers

25 Environmental Defense Fund. *Catalytic Capital and Agriculture Opportunities to Invest in Healthy Soils, Resilient Farms and a Stable Climate*. 2020



sustainably feed the planet, announced the first commitments in 2020 from large global brands to purchase verified agricultural carbon credits through Indigo Carbon. The commitments from companies including Boston Consulting Group, Shopify, Barclays, JPMorgan Chase, Givewith, IBM, Dogfish Head Craft Brewery and New Belgium Brewing represent a major milestone in the global effort to leverage agriculture as a climate solution by creating financial incentives for “farming carbon”.

Connecting Routes to Market for Producers

Regenerative farmers diversifying into less common crop varieties and livestock breeds need confidence that consumer 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 a 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 fibres and leather products for the apparel and textile industry. Farmers across the agricultural system need assurances that taking on risks to diversify will pay off and that a robust and stable market exists. Longer-term contracts and brand partnerships directly with farmers could be a successful model.

Brands sharing the risk with farmers, including the work we are beginning to see take shape out of companies, such as General Mills, Danone and Timberland, will be essential. 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.

Key US Distinctions

In the United States, we have seen that farmers often learn best from other farmers, yet extension services,

Natural Resources Conservation Service (NRCS) agents and Resource Conservation District (RCD) agents are also critically trusted sources; in some cases, where cultural pride is a barrier, farmers and ranchers in the United States might be more likely to seek support from their NRCS or RCD agents than from neighbors.

There are over 3,000 official conservation districts (RCDs) in the United States that provide technical assistance and tools to help farmers and landowners manage their land and water. RCDs have the potential to foster local partnerships to develop and implement carbon farming plans and regenerative practices in their districts, but haven't yet had the broad funding, capacity and technical support to do so. Despite this lack of capacity, several districts have recently been attempting to adopt soil health policies, including the Eastern Region of the National Association of Conservation Districts. Other districts, such as the California association, for example, expressed an interest in developing a soil health policy platform, but haven't had the funding to do so, and districts in Oregon and Washington, despite having more funding, expressed a lack of necessary technical assistance for their agents. In New York, particularly in the Hudson Valley, they also have the core operational funding needed to support regenerative agriculture, but they, along with other RCDs that are ready, expressed the need to plug into a national support system with fellow RCD and TA providers. From our analysis in the United States, it will be critical to strengthen the core capacity and network support of RCDs across the country in order to scale adoption of practices at the field level.

The NRCS is a division of the USDA that also provides farmers and other land managers with direct technical assistance through local area offices, as well as providing individual farmers and ranchers access to many federal grants. Several agents noted that for something with such enormous potential and direct relationships with so many producers on the ground, there is a significant opportunity to engage and educate every single NRCS agent on soil health and the regenerative and climate-smart agriculture that will work for their constituents and producers in a regional context.

According to the USDA Economic Research Service (ERS), the average farm income in 2017 was \$1.3 million in debt and, since 2013, farmers' net income has fallen

by 50%. The median farm income in 2019 was -\$1,383, a slight increase from -\$1,735 in 2018. These incomes are expected to decline to -\$1,840 in 2020. In recent years, roughly half of farm households have had negative farm income each year. As a result, many of these households rely on off-farm income to make ends meet. Regenerative agricultural practices often lead to reduced farm revenues for an initial transition period. Couple this loss of revenue with the already tight financial position of most farmers, and the risk becomes too great for a farmer or rancher to realistically change their practices—not without access to capital to de-risk their transition. In order to address these financial challenges, several groups have emerged in the United States to provide alternative forms of capital to producers. Most notably, these include:

- **RePlant Capital:**

Based in Boulder, Colorado, and Oakland, California, rePlant Capital will deploy \$250 million to farmers transitioning to regenerative or organic practices, with about \$200 million of that going toward loans based on soil health metrics. The balance will fund equity investments in technologies. Starting from scratch has allowed them to build a platform that could reimagine decades of often discriminatory lending to mainly white male farmers, while working with conglomerates like Danone North America from the beginning. RePlant's first loan in January 2020 went to Kansas-based McCarty Family Farms, a fourth-generation dairy that has worked with Danone for almost a decade, which is looking to reduce its water consumption. The loan went toward installing moisture probes on cropland surrounding the farm where water can be in short supply but where the cows often graze, and is one from a pool of \$20 million that will go toward Danone's partners overall.

- **The Perennial Fund (Mad Agriculture):**

The fund enables farmers to transition to regenerative, organic agriculture using creative debt structures paired with fully integrated technical assistance, business planning and access to markets. It provides operating capital to help farmers forge the "three-year gap to organic", when they experience decreased yield at conventional prices. The Perennial Fund offers farmers a ten-year note: (i) beginning with three years of transitional operating capital

where farmers pay what they can; (ii) once organic certification is reached, a revenue sharing structure begins, with a target of being paid 150% of the loan value within five years; (iii) each loan provides up to two deferral years to buffer against weather and market variability. With every farmer, Mad Agriculture co-creates a robust organic transition and farm using a combination of Holistic Management and Regrarians design principles and approaches in order to understand the complexity of their farm ecosystem, evaluating strengths, weaknesses, threats and opportunities across the dimensions of climate, geography, water, wild and cultivated places, infrastructure, plants and animals, soil, community, capital, and markets. Its business planning assistance pulls together these elements to identify both bottom- and top-line opportunities for cost saving and new market outlets for food, fibre and livestock, including creating new supply sheds and partnerships among farmers, supply shed intermediaries (i.e. processors, distributors, retailers) and consumer-facing brands based on a shared set of regenerative and organic values that are embodied in the products. Half of the Perennial Fund farmers will be using the new Regenerative Organic Certification. Social, financial and ecological outcomes of regenerative organic agriculture are being monitored in partnership with Dr. Jon Lundgren and the Ecdysis Foundation. Mad Agriculture is taking powerful first-principles and place-based approaches to catalyse a regenerative revolution in agriculture.

Key UK and Germany Distinctions

The massive cultural and financial inertia of Europe's subsidy-driven farming system has proven to be a hindrance to change, especially toward progressive agricultural approaches such as regenerative agriculture. On top of the considerable financial risk that comes with a radical shift in farming methods, the educational and cultural gaps associated with change cannot be understated. Experts whom we interviewed in the United Kingdom and Germany were quick to stress these issues and acknowledge a lack of options for financing transitions into regenerative agriculture.

Ian Wilkinson, founder of U.K.-based FarmED, a centre for farm and food education, said that some farmers 'are

single mindedly focussed on growing one thing and they specialise in it, so then if you tell them to do something new like integrate livestock, introduce new wheat heritage varieties, etc., they just don't know how to do it. There are not leaders in the United Kingdom who are focussed enough and talented enough to give direction to the farmers who don't know what to do with regenerative agriculture'.

He noted, too, that more public engagement and education around the benefits of products grown regeneratively are part of the challenge. 'We don't have the public to support the regenerative agriculture system', Wilkinson explained. 'So even if we get farmers to support this system, they'll first say "who's going to buy this?" You need the public who buys the food on board to get farmers to do regenerative agriculture the right way'.

Generational dynamics within the farming community contribute to the overall risk adversity of the industry in Europe. In Germany, Benedikt Bösel, of Gut & Bösel said, 'The average age of farmers is 50 to 60 years. If I go to an older farmer and say, "We just found a new way that's economically and socially and environmentally better, and you've been doing it wrong the last 30 to 40 years", you're not going to open the door for conversation. You're going to lose them. We need to find a narrative that's more inclusive to bring people like this on board. No farmer doing highly specialised farming for the last few decades will just say, "You know, we were doing it wrong all along, let's go toward regenerative agriculture"'.

Education plays a huge role in easing fears and minimising the perceived risks of shifting toward regenerative agriculture. Michael Reber, German farming educator and founder of Innovative Landwirtschaft Reber, said that for older farmers, 'What they learn in school about agriculture is completely different than what regenerative agriculture is. The learning system for farmers has not changed in over 30 years. This is the biggest problem. Most farmers are thinking they are green, but they really aren't. We need to show people with education that they can change things'.

Ivo Degn, co-founder of German non-profit Climate Farmers, provides resources for farmers shifting to or already practicing regenerative agriculture. Climate Farmers focusses on three key areas to provide

this support: access to financing, measurement and monitoring of ecological outcomes; knowledge sharing between farmers to increase access to best practices; and access to market for regenerative farmers and those in transition toward regenerative agriculture.

De-risking the transition to regenerative agriculture is a crucial step for the growth of the movement. This transition needs to be approached holistically with financial, educational and emotional support all being

provided to farmers. Addressing just one of these factors by itself hinders the chances that a lifelong conventional, industrial farmer or a younger, first-generation farmer will move toward regenerative agriculture. Just like regenerative agriculture itself, where a farmer needs to consider the interconnected systems on their land and nurture multiple pieces of their farm ecosystems at once, the regenerative agriculture movement overall requires an equally holistic approach in order to thrive.

WHAT THIS MEANS FOR NEW ZEALAND

Raising the profile and increasing the influence of farmers can empower grassroots farmer movements to play a more prominent role in shaping policy, engaging consumers and creating better financing mechanisms. Investment into the necessary, regional, farmer-led initiatives and coalitions, regional processing hubs and flexible capital structures to support farmers in transition will help fuel a regenerative agriculture movement and provide platforms for farmers to engage proactively with industry and government, as well as with each other.

A couple key takeaways from stakeholders in this space include:

- New Zealand should provide or ensure there is access to flexible and patient capital for New Zealand producers to execute regenerative farm plans.
- New Zealand should invest in trusted technical support to these producers, alongside the capital, to ensure each producer has a successful long-term pathway to success and is supported by a network of peers and trusted advocates. This assistance should include the following:
 1. Education programs that are hands-on, practical and multi-day—with teachers who have deep farm and ranch experience.
 2. Follow-up consultation and support for the producers, so they can work through challenges as they arise.
 3. Producers connected to networks to provide peer support.
- New Zealand should develop risk sharing strategies with producers, including partnering with brands, food companies and retailers to provide longer-term contracts and brand partnerships directly with New Zealand producers. This will provide key market opportunities to your producers, as well as opportunities for both New Zealand and your producers to tell your unique story of regeneration globally.

The image is a full-page background featuring an aerial view of a coastal landscape. The top half shows a vast, calm blue sea meeting a light blue sky. The bottom half shows a lush green field with several white sheep grazing. The text is overlaid on a white rectangular area in the center.

THE ECONOMIC VIABILITY OF REGENERATIVE AGRICULTURE

Understanding the potential for incremental financial benefit

Rural economic viability is often one of the key outcomes associated with regenerative agriculture. The economic potential of regenerative agriculture primarily centres around rebuilding and regenerating the economic health and viability of rural farming communities, as opposed to currently demanding a specific regenerative premium.

As Robyn O’Brien of rePlant Capital described it, ‘Regenerative represents a significant cost savings for farmers and producers, creating more resilience across our farming communities. While organic represents a premium in many markets, regenerative agriculture, on its own, does not currently command a premium, as this will require legal definitions and more regulated markets’.

While there might not yet be premiums associated with regenerative agriculture broadly, researchers are finding that, in certain supply chains, such as grass-fed beef or organic grains, farmers are able to command premiums where there are existing certifications and legal definitions; in addition, farmers can increase the profitability of their operations through reduced input costs and diversified market opportunities.

Researchers from Ecdysis Foundation recently investigated how the move to more regenerative systems might affect yields, pests and profitability, producing a report in 2018 entitled, “Regenerative agriculture: merging farming and natural resource conservation profitably”. The 20 farms in the review were ranked based on their implementation of regenerative agriculture practices. The researchers then looked at soil organic matter, pest presence, crop yield and profit. As expected, crop yields decreased in regenerative systems, and by 29%, no less. But while yield has served as the traditional metric of interest for farmers, that decrease in yield does not tell the whole story. The study found that the farms with regenerative practices were 78% more profitable than conventional plots. This increase in profitability was the result of two main factors: input costs and end markets.

Over time, regenerative agricultural systems require less external inputs, primarily in the form of seed and fertiliser. In their study on merging farming and natural resource

conservation profitability,²⁶ the research team observed an increase in soil organic matter. Soil organic matter decreases the need for external fertiliser by ensuring that necessary nutrients are available for crops. In fact, the team found that almost a third of farmers’ gross income went into external inputs on conventional fields, compared to 12% in regenerative fields. But the benefits go beyond fertiliser costs. Increasing soil organic matter also increased the diversity of insects found in the soil. Insect diversity has been shown to decrease harmful pest abundance, leading to stronger crops.

The same study found that regenerative corn farmers, for example, received higher premiums for their crop through varying certifications, mainly organic certifications, by selling their grain directly to consumers as seed or feed, and by extracting more than just corn revenue from their field (e.g., by grazing cover mixes with livestock). Farmers are able to benefit from a higher-value product, even if they aren’t able to produce the same high yields in terms of bushels per acre. This trade-off is a net positive on the ground and confirms that soil organic matter might just be a more important driver of approximate farm profitability than yield.

Implications for New Zealand

Bolstering the economic viability of farmers and producers with regenerative agriculture will typically come from increasing profitability through reduced input costs related to things like fertiliser, pesticides, herbicides and more. Ensuring that increased profitability through regenerative agriculture impacts the farmer and producer level should be built into any national strategy and/or certification. This ability to increase profitability through cost reduction is one that should be demonstrated in practice locally and used as an example to drive adoption of regenerative agriculture.

Combining the cost savings associated with regenerative agriculture while simultaneously leveraging widely known certifications with a track record of yielding price premiums, such as organic or grass-fed, can further build the economic case for regenerative agriculture adoption.

26 Lundgren, Jonathan and Claire E. LaCanne. *Regenerative agriculture: merging farming and natural resource conservation profitably*. February 2018.



While regenerative agriculture certification could prove valuable in the market one day, for the export markets that we examined, none of them had a widely accepted certification with associated price premium and they will not likely have one for years to come. In the meantime, applying existing certifications that already demand price premiums today is the path of least resistance for convincing consumers to spend more on certain food items.

New Zealand could also explore partnerships with emerging regenerative agriculture-related certifications like the Savory Institute's Land to Market and EOV programs or partnering with specific brands where New Zealand could supply the regenerative agriculture-grown product and lean on the brand to win price premiums through exceptional storytelling and marketing. Additionally, if New Zealand is able to focus on establishing a link between improved nutrient density and regenerative agriculture-produced food (as recommended in this document), and can successfully do so, a wealth of new possibilities and opportunities can open up to demand price premiums for regenerative agriculture-produced items.

It is important to remember that any price premiums that regenerative agriculture may yield will typically compress over time, if more growers worldwide adopt regenerative agriculture for their products. Early regenerative agriculture producers who are successful have the best chance of maximizing whatever premium the market will pay. Ideally, the potential for increased economic benefits early on will entice growers and accelerate the adoption of RA and all the ecosystem benefits that come with it.

New Zealand can establish itself as a regenerative agriculture thought leader by developing an ecosystem outcomes-based certification standard that is producer led and incorporates much of the recommendations in this document. Allowing producers to continuously improve and meet these outcomes, while compensating them at a national level for continued ecosystem improvements beyond yield and profit can provide valuable data and success stories as a model for other countries to adopt. But it is important to remember that any certification or standard that New Zealand develops nationally will not drive adoption at the farm level, at least not at first, which is why focusing on field adoption in a more grassroots way must happen first.

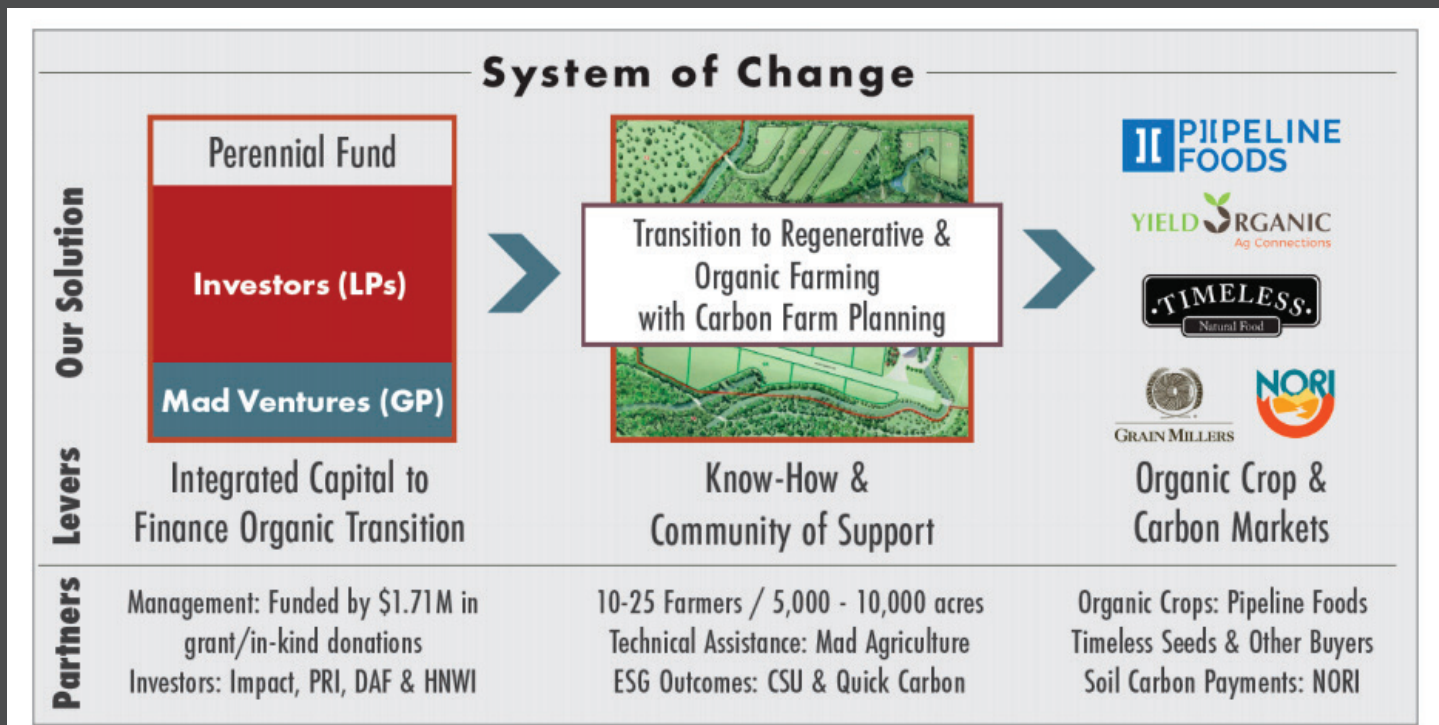
PERENNIAL FUND

Fuelling the Transition Through Patient Capital

Investment in sustainable agriculture is constrained by several barriers. These barriers include the multi-year timeframe for soil health practices to deliver financial value, the prevalence of mainstream agriculture financial structures that favour conventional practices, a lack of market premiums for sustainably produced crops and a lack of pricing for environmental benefits. Understanding these barriers and how they constrain investment in sustainable agricultural models is essential to developing catalytic solutions that address these barriers. The Perennial Fund has been launched by Mad Agriculture to address these barriers. The fund enables farmers to transition to regenerative, organic agriculture using creative debt structures paired with fully integrated technical assistance, business planning and access to

markets. They provide operating capital to help farmers forge the “three-year gap to organic”, when they experience decreased yield at conventional prices.

The fund offers three-year operating loans to farmers transitioning to organic production, with market off-take support and repayment over eight to 10 years through a 10 to 50% revenue share. The fund illustrates the value of designing first principles first, addressing fundamental challenges and thinking creatively to allocate and mitigate risk. It illustrates the importance of using a pilot phase to validate key outcomes while preparing for scale. The Perennial Fund also engaged scale-up partners early on. It is also laying the technical and technological scaffolding to integrate carbon markets and scale up the model.



The figure above summarises the key elements of the fund. Integrated (blended) capital from a range of sources enables Mad Agriculture to offer a 10-year organic transition loan to small- and mid-size (50- to 10,000-acre) commodity cash crop farms in the high and central plains. In addition, Mad Agriculture provides farmers with technical assistance in planning and implementing a transition to organic farming, including carbon farming outcomes and monitoring by independent third parties. This is reinforced by a community of support arranging off-take agreements with buyers for crops, seeds and carbon credits.

The Perennial Fund’s proposition is customised to the needs of farmers going through the organic transition and involves: a 10-year structure based on a three-year transition and a five-year payback and two-year financial buffer (to hedge against bad weather and/or markets). The loan amount varies from \$50 to \$1,000 per acre depending on the production costs and operating needs during the organic transition. The loan repayment follows an outcomes-based model in which farmers only begin repaying the loan once they begin to make

profits. After the three-year transition period, farmers are required to pay a 10 to 50% gross revenue share until 1.5 times the initial investment is returned, within 10 years of receiving the original loan. If the whole amount cannot be repaid after 10 years, the loan can be restructured and/or extended.

The Perennial Fund is capitalised by a blend of capital from family offices, foundations and high net-worth individuals. Mad Agriculture will manage the Perennial Fund. No management fee will be charged to investors. The management of the fund will instead be supported by a \$817,700 grant from USDA-NRCS and a \$889,000 in-kind match from Mad Agriculture, made possible by grant support from companies like Patagonia and other donors. The Perennial Fund conservatively estimates that it will generate a 9% internal rate of return (IRR) over the life of the 10-year fund, with the potential of achieving an 11% IRR if market and weather conditions are favourable.

During the pilot stage of the Perennial Fund, Mad Agriculture will direct approximately \$5 million of funding and validate the economics and scalability of its model



in the Midwest Corn Belt. Once Mad Agriculture has validated its model, it identifies three pathways for taking the model to significant scale:

1. A follow-on fund managed by Mad Agriculture that is five to 10 times larger than its pilot fund.
2. Enabling replication by other place-based organisations using the tools and model Mad Agriculture has developed. This could take the form of a retail offering in a community bank.
3. A pledge fund approach where Mad Agriculture creates the pipeline and due diligence process but works with equity investors and reliable banking partners to continually fund new projects.

Astutely, Mad Agriculture has developed a set of strategic partnerships that provide a long-term foundation for significant scale, while remaining agnostic on an approach to carbon markets. First, Mad Agriculture partners with organic grain buyers, who are searching for greater domestic supply and therefore keen to partner with Mad Agriculture to form new regional organic purchasing hotspots. Second, they partner with farmer associations that are trusted by farmers.

By beginning to build relationships with them now, Mad Agriculture is setting up a follow-on fund that would need to secure many more farmers as customers. Third, they have engaged software developers to develop digital tools for site surveys, due diligence, outcomes monitoring and technical assistance, which can support robust validation of the model and be deployed at larger scale in the future. And finally, Mad Agriculture has laid the foundation for the Fund and its farmers to participate in carbon markets, by investing in carbon farm planning and measurement capabilities, while maintaining a wait-and-see posture around which buyers and markets can engage.



POLICY OVERVIEW

Understanding the obstacles and enablers
of regenerative agriculture for public policy

UNITED STATES POLICY CONTEXT

USDA's Current Role, Financing Conservation Practices Through the NRCS

U.S. agricultural policy heavily influences farming systems, covering aspects such as crop insurance, land conversion, trade, nutrition and the research agenda. The current regulatory regime incentivises 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 the planet.

The Natural Resources Conservation Service (NRCS) is the main entity through which individual farmers and ranchers currently gain access to financial capital to support their individual farm level conservation work in the U.S. The NRCS has several financial tools and federal grant programmes to work with growers in conserving natural resources. Of the working lands programmes, two stand out: (1) Environmental Quality Incentives Program (EQIP), and (2) Conservation Stewardship Program (CSP). These programmes provide growers with the financial incentives and technical assistance to implement conservation practices and improve systems through infrastructure upgrades.

The CSP provides payments to agricultural producers for conservation practices that reduce soil erosion, improve soil fertility, conserve energy, enhance wildlife and pollinator habitat, and improve water quality. CSP is unique in that it rewards existing conservation practices. Other USDA conservation programmes, including EQIP, only fund the addition of new conservation activities. Farmers who have been doing good conservation on their working land for years can now be rewarded for their dedicated land stewardship, even if they haven't qualified for other programmes. Not only do farmers receive a higher payment for existing conservation, but the CSP assists with the expensive maintenance of these activities.

Such programmes are highly competitive and functionally untenable for most farmers, especially farmers on small family farms, to financially justify investing in new

practices. This is because growers, on average, end up co-investing in each enhancement at around 50%. Another concern about the NRCS programmes is that they are often not fine-tuned to a farmer's particular situation. Payments for conservation practices generally do not change depending on the farmer's location or surroundings, even though the public and environmental benefits of conservation and regenerative agriculture vary widely across different locations and ecosystems. Overall adoption remains low compared to total acreage in agriculture (900 million acres according to the 2017 U.S. Census of Agriculture). About 140 million acres, or only about 15% of total farmland, are receiving conservation assistance from the federal government due mostly to constraints on the programme financially and barriers in applying to and meeting requirements for small- to mid-sized producers.

Awareness of the regenerative option also remains patchy. The National Young Farmers Coalition (NYFC), a farmer-led network dedicated to the success of young farmers, found in its report, 'Building a Future with Farmers', that many farmers simply don't know about these conservation programmes. Even among presumably well-informed NYFC members, 30% of survey respondents were unfamiliar with federal conservation programmes. And for those who do know about the system, 40% said that the paperwork was too burdensome, and another 28% said that working with their local USDA office was too difficult. Moreover, these types of federal programmes are targeted for significant cuts during Farm Bill negotiations every four years. Therefore, if regenerative farming can grow, more informal networks will need to carry its message in the United States.²⁷

Stakeholders across the sector highlighted the importance of passing progressive policy and coordinated federal, state and local legislation reform. As a pragmatic first step, the U.S. should increasingly utilise and expand USDA-funding mechanisms, such as those described above, to engage policymakers while providing increased subsidies for regenerative practices. Policies also need to focus on committing government funding towards research on regenerative agriculture practices, improving

27 Sophie Ackoff, Andrew Bahrenburg and Lindsey Lusher Shute. 'Building a Future with Farmers II'. National Young Farmers Coalition, Nov. 2017.

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 as well, to deliver the scale needed to support a fully regenerative transition.

Policy Interest Is Beginning to Grow, Yet We Are in Very Early Days

Recently, the dynamics in Washington, D.C., have shifted regarding climate and agricultural policy and we anticipate more hearings, resolutions and bill introductions. This shift is due to the efforts of the National Healthy Soils Policy Network, a group of farmer-centred organisations that advocate for state and federal policies on behalf of sustainable, organic, beginning, minority and/or family farmers; the Green New Deal; and the creation of the House Select Committee on the Climate Crisis. Most of the major Democratic presidential candidates in 2020 included agriculture in their climate platforms, including President Joe Biden, a signal that they are beginning to read the changing political winds. Due in part to recent natural disasters exacerbating the country's dire farm crisis, even farmers in politically conservative states are beginning to talk about climate change.

In Dec. 2020, Biden said that the USDA will provide conservation payments to farmers who 'put their land in conservation' and plant cover crops to help sequester carbon in their fields.²⁸ And in Feb. 2021, Biden announced a multi-billion-dollar plan to establish a 'carbon bank' that would pay farmers for carbon capture by implementing regenerative agriculture principles.²⁹ Many advocacy groups are concerned that the USDA's Carbon Market approach will be very challenging to implement across varying regions and farm sizes, and could end up exacerbating the already deep equity issues present in the U.S. agricultural system. In light of these

concerns, advocacy groups across the U.S. have been organising and submitting comments to the USDA in hopes of shaping a carbon credit system that will actually work for all farmers and move the needle towards more ecosystem service rewards beyond carbon, and not just another tool to support large commodity crop farmers and leave small family farmers behind. In April 2021, the Biden administration made a commitment to reduce U.S. greenhouse gas emissions in half by 2030. While the administration has yet to set targets for the agriculture industry, it is clear that it must do so.³⁰

Advocates have already notched some impressive wins over the years that are worth highlighting, including:

- Successful lawsuits such as Pigford and Eagleton that exposed the long history of racial and gender biases in USDA programs and subsequent efforts to remedy these issues;
- The emergence of the Conservation Stewardship Program in the 2002 Farm Bill and a recognition for the importance of compensating farmers who incorporate regenerative practice;
- A widespread embrace of soil health-supporting policy at the state and federal level, coupled with a recognition of the opportunities and challenges presented by climate change; and
- More opportunities for supporting beginning farmers, BIPOC farmers and others who are attempting to establish farm businesses outside of the prevailing commodity structure.

Despite these successes, however, these advocates also recognise that this policy advocacy has failed to create transformational shifts in much of agricultural production in the U.S. Existing agricultural constituencies and economic inertia have largely kept the corn, soybeans, wheat, cotton and conventional livestock industries along the same trajectory for several decades.

28 Chuck Abbot, 'Biden vows to pay farmers to plant cover crops and put land in conservation'. Successful Farming, Dec. 14, 2020: <https://www.agriculture.com/news/business/biden-vows-to-pay-farmers-to-plant-cover-crops-and-put-land-in-conservation>.

29 Zack Colman, Liz Crampton and Helena Bottemiller Evich, 'Biden mulls giving farmers billions to fight climate change. Even farmers are unsure about the plan.' Politico, March 29, 2021: <https://www.politico.com/news/2021/03/29/biden-carbon-bank-proposal-478224>.

30 Ryan McCrimmon, 'White House dances around a big contributor to climate change: Agriculture'. Politico, April 22, 2021: <https://www.politico.com/news/2021/04/22/climate-change-biden-agriculture-484351>.

The National Sustainable Agriculture Coalition (NSAC) has a climate subcommittee, which has recently increased its activity around these issues. They recently released ‘Agriculture and Climate Change: Policy Imperatives and Opportunities to Help Producers Meet the Challenge’ which summarises the latest in agricultural and climate science and puts forward nearly 30 detailed public policy recommendations that will be used to inform recommendations to USDA and Congress. NSAC has also published eight policy principles on agriculture and climate change that will guide its future work to influence effective and farmer-centred legislation. Finally, members are collecting hundreds of farmer signatures on a statement calling for federal investments in solutions to enhance the resilience of rural and agricultural communities and incentivise the delivery of agricultural solutions to the climate crisis.

As momentum continues to build towards major policy changes, there is a need felt by many advocacy and policy experts in the U.S. to rapidly experiment with and evaluate policy tools to help government and policymakers gain the necessary evidence to implement ambitious new actions for climate mitigation, adaptation, rural economic development, habitat protection and food security. Identifying and supporting a set of policy options on which most stakeholders can agree and collaborate will be key.

Ferd Hoefner, a senior strategic advisor for NSAC, and his team summed up the current political landscape in the U.S. around regenerative agriculture: ‘We are beginning to see some uptick in interest by legislators on agricultural policy reform. Most of this focus, however, is coming in the form of rolling agriculture up into climate legislation in the short term, which will likely not be very specific to the regenerative agriculture outcomes we all want to see. We are still a very, very long way off from our legislators understanding any of this at the practice level and advocating for and incentivising a broad scale shift to regenerative agriculture on the landscape. We have a lot of organising, convening and movement building to do before we get there. And when we do get there, modifying – or better yet, overhauling – the Farm

Bill is going to be necessary to ensure we can produce adequate, nutritious and sustainable food that doesn’t bankrupt farmers, our landscapes or taxpayers in the process. Changing harmful subsidies and crop insurance will have to be the first priority across the movement. This will have to start with simply trying to engage more progressive legislators and policy advocates on the issues, both at the state and federal levels. Beyond this, any sort of policy around certifications or standards specific to regenerative are likely more than a decade or two out, as the focus will be on changing subsidies and crop insurance issues first and foremost’.

Still, there are some key policies to watch that will shape the future of regenerative agriculture in the U.S., which include:

- **Justice For Black Farmers Act:** U.S. Senators Cory Booker (D-NJ), Elizabeth Warren (D-MA) and Kirsten Gillibrand (D-NY) introduced the Justice for Black Farmers Act. This legislation seeks to address historic discrimination within the U.S. Department of Agriculture in federal farm assistance and lending that has caused Black farmers to lose millions of acres of farmland and robbed Black farmers and their families of hundreds of billions of dollars in intergenerational wealth. The bill, which will be included in the \$1.9 trillion COVID relief package, would provide ‘\$4 billion in direct relief payments to help farmers of color pay off outstanding USDA farm loan debts and related taxes, and help them respond to the economic impacts of the pandemic’ as well as ‘another \$1 billion fund to support activities at USDA that will root out systemic racism, provide technical and legal assistance to agricultural communities of color, and fund under-resourced programs that will shape the future for farmers and communities of color’.³¹
- **Agriculture Resilience Act:** Introduced by Rep. Chellie Pingree from Maine, this bill is guided by the philosophy of trying to reorient existing USDA programs to push for good climate outcomes. This is not necessarily incompatible with a focus on creating a market for carbon, but a lot of people fear

31 Justice for Black Farmers Act, S.300, 117th Cong. 2021. <https://www.congress.gov/bill/117th-congress/senate-bill/300?q=%7B%22search%22%3A%5B%22S.+300%22%5D%7D&s=4&r=1>

that once a market is established, all momentum to do these other things will dissipate. To reach net-zero agricultural emissions within the next 20 years, the ARA focuses on six concrete policy areas and offers solutions rooted in science that are farmer-driven. These goals include: (1) Increasing research; (2) Improving soil health; (3) Protecting existing farmland; (4) Supporting pasture-based livestock systems; (5) Boosting investments in on-farm energy initiatives; and (6) Reducing food waste.³²

- **Growing Climate Solutions Act:** The act creates a certification programme at USDA to help solve technical entry barriers that prevent farmer and forest landowner participation in carbon credit markets. These issues – including access to reliable information about markets and access to qualified technical assistance providers and credit protocol verifiers – have limited both landowner participation and the adoption of practices that help reduce the costs of developing carbon credits. To address this, the bill establishes a Greenhouse Gas Technical Assistance Provider and Third-Party Verifier Certification Program through which USDA will be able to provide transparency, legitimacy and informal endorsement of third-party verifiers and technical service providers that help private landowners generate carbon credits through a variety of agriculture- and forestry-related practices. The USDA certification programme will ensure that these assistance providers have agriculture and forestry expertise, which is lacking in the current marketplace. As part of the programme, USDA will administer a new website, which will serve as a ‘one stop shop’ of information and resources for producers and foresters who are interested in participating in carbon markets.³³
- **Climate Stewardship Act:** U.S. Senator Cory Booker (D-NJ) introduced a climate change bill focussed

on voluntary farm and ranch conservation practices, massive reforestation and wetlands restoration. The Climate Stewardship Act of 2019, inspired by measures implemented in former U.S. President Franklin D. Roosevelt’s New Deal, would support voluntary climate stewardship practices on more than 100 million acres of farmland, plant more than 15 billion trees to revive deforested landscapes and expand urban tree cover, reestablish the Civilian Conservation Corps – one of the New Deal’s most popular programmes – restore over two million acres of coastal wetlands, and invest in renewable energy for farmers and rural small businesses in the spirit of the New Deal’s Rural Electrification Act, which provided low-cost loans to help bring electricity to rural America. Rep. Deb Haaland (D-NM), Chairwoman of the House Natural Resources Subcommittee on National Parks, Forests, and Public Lands will lead companion legislation in the House of Representatives.³⁴

The USDA Organic Standard vs Regenerative Agriculture

J. I. Rodale, founder of the Rodale Research Institute and *Organic Farming and Gardening* magazine, is commonly regarded as the father of the modern organic farming movement. Beginning in the 1940s, Rodale provided the main source of information about “non-chemical” farming methods and was heavily influential in the development of organic production methods.

By the 1970s, increased environmental awareness and consumer demand fuelled the growth of the organic industry. However, the new organic industry suffered growing pains. Although there was general agreement on philosophical approaches, no standards or regulations existed that could define organic

32 The Agriculture Resilience Act, H.R.5861, 116th Cong. 2020. <https://www.congress.gov/bill/116th-congress/house-bill/5861>

33 Growing Climate Solutions Act of 2021, S.1251, 117th Cong. 2021. <https://www.congress.gov/bill/117th-congress/senate-bill/1251?q=%7B%22search%22%3A%5B%22S.+1251%22%5D%7D&s=1&r=1>

34 A bill to provide incentives for agricultural producers to carry out climate stewardship practices, to provide for increased reforestation across the United States, to establish the Coastal and Estuary Resilience Grant Program, and for other purposes, S.1072, 117th Cong. 2021. <https://www.congress.gov/bill/117th-congress/senate-bill/1072?q=%7B%22search%22%3A%5B%22s.+1072%22%5D%7D&r=1&s=7>

agriculture. The first certification programs were decentralised, meaning that each state or certifying agent could determine standards based on production practices and constraints in their region. An apple farmer in New York has very different challenges than an apple farmer in California, for example.

The downside of this decentralised approach was a lack of clarity about what “organic” meant from state to state. A movement grew to develop a national organic standard to help facilitate interstate marketing. In response, Congress passed the Organic Foods Production Act (OFPA) in 1990 to develop a national standard for organic food and fibre production. OFPA mandated that USDA develop and write regulations to explain the law to producers, handlers and certifiers. OFPA also called for an advisory National Organic Standards Board to make recommendations regarding the substances that could be used in organic production and handling, and to help USDA write the regulations. After years of work, final rules were written and implemented in fall 2002.

Although the actual production techniques of organic food have not changed dramatically since the implementation of the national standards, “organic” now is a labelling term that indicates that food has been grown following the federal guidelines of the Organic Foods Production Act. The national standards also specify that any producers who sell over \$5,000 annually in agricultural products and want to label their product “organic” must be certified by a USDA-accredited agency. Companies that process organic food must be certified, too.

Today, many regenerative agriculture movement leaders and leaders of the organic movement view the co-opting of the word “organic” by large corporations and monocrop farms as evidence of the label’s erosion. They also worry about the influx of fraudulent organic food being imported into the country. And the fact that the current USDA and U.S. Environmental Protection Agency (EPA) have both moved away from many of the values embraced by the organic movement in the last few years seems to be spurring this new regenerative movement along. USDA organic requirements are meant to be updated through the National Organic Standards Boards (NOSB), a group of farmers, industry reps and scientists that meets twice yearly in a public setting to discuss and vote on recommendations for the National Organic

Program. A growing group of activists and producers, however, have become disillusioned with the ability to foundationally improve the organic standard to embrace evolving regenerative principles in light of NOSB’s decisions last year to allow soil-free crops – such as those grown using hydroponics – to qualify as certified organic and the withdrawal of a rule that required improvements in animal welfare. These decisions are just the latest examples that indicate a number of representatives of large corporations on the board itself who would like to see the standards further watered down, as opposed to improved and advanced.

‘Some folks fought so long and hard to get [federal organic standards] only to see these things trying to displace them’, explained Elizabeth Whitlow, executive director of the Regenerative Organic Alliance (ROC). ‘I credit the organic

movement for creating an atmosphere that even allows this conversation. But, especially here in California, you don’t have to drive very far to see an organic farm that is not fulfilling the ideal organic vision’. Some ranchers, like Julie Morris of Morris Grassfed Beef in California’s San Benito County, said the organic label has never worked for her family’s operation. Unlike ROC, Morris says the original organic standards were written for fruit and vegetable growers and did not take adequately into account livestock practices. Morris Grassfed’s pastures are certified organic, but their beef is not because they work with smaller butchers who can’t always afford certification.

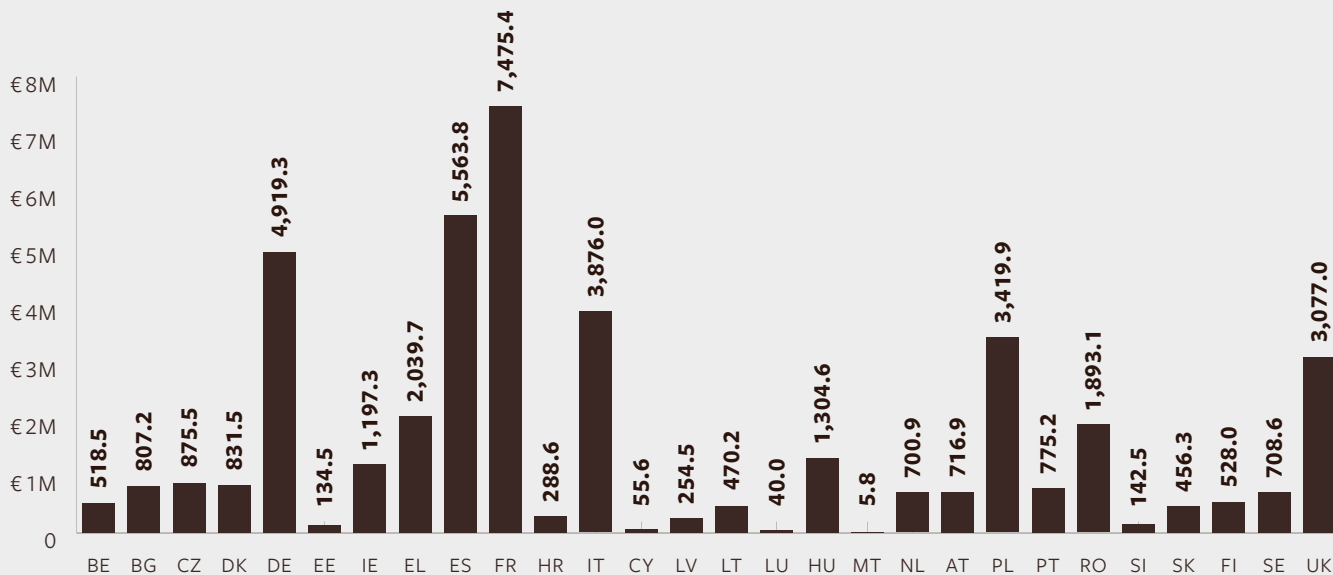
As these battles are waged on how and if the organic standard can be improved to incorporate more regenerative principles, many advocates believe that focussing policy efforts in the United States on overhauling the Farm Bill, especially crop insurance and subsidy reform, and expanding USDA Conservation Stewardship funding and programs will be more critical and effective in the short term.

UK AND GERMANY POLICY CONTEXT

The European agriculture industry is regulated and managed by the Common Agricultural Plan (CAP), which was established in 1962 and is responsible for protecting and supporting the farming industry through agricultural subsidies and other interventions to the tune of nearly €65 billion, making it one of the largest subsidy programs

European Agricultural Guarantee Fund (EAGF)

Market related expenditure and direct payments 2019 (EUR million)



Source: European Commission, ‘EU expenditure and revenue 2014-2020’, European Commission, 2020: https://ec.europa.eu/budget/graphs/revenue_expenditure.html.

in the world, according to a 2019 New York Times article called “The Money Farmers”.³⁵

Based on a report from the European Commission,³⁶ Europe created the CAP to acknowledge the fact that despite the importance of agriculture in society, farmer incomes are typically 40% lower than non-agricultural incomes, weather patterns play an important and relatively unpredictable role in economic outcomes and there exists a lengthy gap between supply and demand timing, as the lead time for growing crops is long.

As a result of these factors, the CAP was designed to accomplish five main objectives for European farmers:

- Increase productivity by promoting technical progress and ensuring the optimum use of the factors of production, in particular labour;
- Ensure a fair standard of living for the agricultural community;
- Stabilise markets;
- Secure availability of supplies; and
- Provide consumers with food at reasonable prices.

Currently, the Farm to Fork strategy, and the broader European Green Deal that encompasses it, is still being negotiated and debated. There is a significant amount

35 Selam Gebrekidan, Matt Apuzzo and Benjamin Novak, ‘The Money Farmers’. The New York Times, Nov. 3, 2019: <https://www.nytimes.com/2019/11/03/world/europe/eu-farm-subsidy-hungary.html>

36 European Commission, ‘The common agricultural policy at a glance’, https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cap-glance_en

of ground yet to cover in order to pass the European Green Deal and Farm to Fork strategy, and fierce debate has emerged from both sides of the political spectrum on this new policy. A \$2 trillion dollar group of investors have even banded together to encourage the European Commission to be more aggressive in overhauling its vast subsidy system so that climate change and biodiversity are more highly prioritised.³⁷

In April 2021, The European Commission published findings from a two-year study to understand the key challenges and potential frameworks for establishing carbon farming initiatives across the EU. The Commission aims to launch an EU carbon farming initiative by the end of 2021, which will include the development of local and regional carbon farming pilots. As part of this program, the EU also aims to establish a carbon credit system.³⁸

In 2019, the European Commission reported that³⁹ €4.9 billion (11.4%) was paid to Germany and €3.9 billion (7.1%) to the United Kingdom. The CAP supports only certain agricultural products, which include: cereal, rice, potatoes, milk and milk products, wine, beef and veal, poultry meat and eggs, pig meat, sheep and lamb meat, goat meat, sugar, fruit and vegetables, cotton and more.

The direct income subsidy program is the largest form of support CAP provides to farmers, and, according to a report in 2019 by the Utrecht University of Applied Sciences,⁴⁰ provides a subsidy of approximately €260 per hectare of land owned. Additional payments can be made to farmers based on special situations such as farming incentive payments to aspiring farmers, greening payments for employing sustainable practices and additional optional schemes that EU countries can choose to implement.

Income Support per Farmer	Farmers (%)	Income Support (€)	Income Support (%)
€ < 500	25.0 %	531,338	1.3 %
€ 500–1250	24.1 %	1,273,432,000	3.1 %
€ 1250–5000	26.9 %	4,536,583,000	10.9 %
€ > 5000	24.0 %	35,216,169,000	84.7 %

Distribution of income support for farmers in 2017, Source: European Commission

CAP subsidies disproportionately fund large farming organisations, not smallholder farms that may be more likely to adopt new, more regenerative practices on their farms. The largest 24% of farms in the EU received nearly 85% of the total income subsidies, according to the European Data Journalism Network.⁴¹ One critic of this distribution, Laura Bromet of the Dutch Green Party, GroenLinks, said that ‘the EU should give more support to farmers who want to make their business more sustainable [or] who invest in animal welfare’.

Experts whom we interviewed for this study felt that the distribution of subsidies has been slow to change partly due to lobbying groups who represent these large farmers and ensure that the status quo remains.

37 Simon Jessop and Kate Abnett, ‘Investors urge Europe to prioritise climate in agriculture reform’. Reuters. March 21, 2021: <https://www.reuters.com/article/us-europe-agriculture-regulation-investo-idUSKBN2BE00R>

38 European Commission, ‘Carbon Farming’. 2021: https://ec.europa.eu/clima/content/carbon-farming_en

39 European Commission, ‘EU expenditure and revenue 2014-2020.’ 2020: https://ec.europa.eu/budget/graphs/revenue_expenditure.html

40 Utrecht University of Applied Sciences, NL, True: ‘80 percent of the European money for agriculture goes to the 20 percent largest farmers.’ <https://eufactcheck.eu>, 2019.

41 European Data Journalism Network, ‘1.6 million farmers receive almost 85 percent of the EU’s agricultural subsidies’, May 24, 2019: [/www.europeandatajournalism.eu/eng/News/Data-news/1.6-million-farmers-receive-almost-85-percent-of-the-EU-s-agricultural-subsidies](http://www.europeandatajournalism.eu/eng/News/Data-news/1.6-million-farmers-receive-almost-85-percent-of-the-EU-s-agricultural-subsidies)



Photo: New Zealand Winegrowers Inc.

Corruption within the CAP has been present for decades. In 2019, the *New York Times* reported⁴² that ‘in former Soviet bloc countries, where the government owned lots of farmland, leaders like Hungary’s prime minister, Viktor Orban, have auctioned off land to political allies and family members. And the subsidies follow the land. A company formed by the Czech prime minister, Andrej Babis, collected at least \$42 million in subsidies last year’.

In recent years, the conversation around policy and subsidy reform has accelerated toward a model where creating positive ecological outcomes are more closely tied to farmer subsidies and increased mandates prohibiting the use of agricultural chemicals such as glyphosate.

The European Green Deal and Farm to Fork Strategy

In June 2018, the European Commission proposed new measures to strengthen the support to European farmers while raising the bar significantly on creating positive environmental outcomes that will help mitigate climate change. The proposed measures, which would go into effect in 2021, would provide increased levels of financial support per hectare for small- and mid-sized farms, set a limit on single farm payouts at €100 thousand per year to ensure a more even distribution of payments, a minimum of 2% of direct support payments going to young farmers under the age of 41, and a mandate that EU countries have to ensure that actual farms receive support in order to avoid non-farming companies who

42 Selam Gebrekidan, Matt Apuzzo and Benjamin Novak, *The Money Farmers: How Oligarchs and Populists Milk the E.U. for Millions*. The New York Times, 2019}.

own farmland to receive subsidies, which has been a common practice.

Introduced in May 2020 as part of the European Green Deal, the Farm to Fork strategy was crafted as a more ambitious set of regulations toward a more sustainable agricultural system. While regenerative agriculture is not explicitly mentioned in the Farm to Fork proposal, many of the outcomes it aims to incentivize are in line with those of a regenerative agriculture system. According to the proposal published in 2019 by the European Commission,⁴³ the key goals of the Farm to Fork strategy, to meet by the year 2030, include:

- Reducing the use of chemical and more hazardous pesticides by 50%;
- Reducing soil nutrient losses by at least 50%;
- Reducing fertiliser use by at least 20%;
- Reducing the sale of antimicrobials for farmed animals and in aquaculture by 50%; and
- Helping the EU's organic farming sector grow, with the goal of 25% of total farmland being used for organic farming by 2030.

Currently, the Farm to Fork strategy, and the broader European Green Deal that encompasses it, is still being negotiated and debated. There is a significant amount of ground yet to cover in order to pass the European Green Deal and Farm to Fork strategy, and fierce debate has emerged from both sides of the political spectrum on this new policy. A \$2 trillion dollar group of investors have even banded together to encourage the European Commission to be more aggressive in overhauling its vast subsidy system so that climate change and biodiversity are more highly prioritized.⁴⁴

U.S. Secretary of Agriculture Sonny Perdue has been very vocal about how the new policy would stifle innovation and not prove successful in producing enough food to feed a growing global population. Perdue wrote this year in an op-ed for the EUObserver,⁴⁵ 'While we commend the EU's commitment to sustainability, the Farm to Fork strategy as proposed is a recipe for high cost and low output agricultural production...With this strategy, it appears Europe has forgotten the "farm" in "farm to fork"'.

Echoing Perdue's sentiments in Germany, Dr. Wilhelm Kremer-Schillings, more commonly known to his followers as "Farmer Willi", spearheaded a grassroots campaign called the Green Cross protest as a way for individual farmers to express their objections to increased regulations around sustainable agriculture and mandates that would ban the use of key fertilisers and pesticides like glyphosate.

The campaign asked farmers who stood with Farmer Willi's stance to place large green crosses on their farmland so passersby could see them from the roads. An estimated 10,000 crosses were erected across the country, Karen Bradbury reported last year in *Stripes Europe*.⁴⁶ However, this seemingly grassroots movement was called into question by some, as it was later revealed that Farmer Willi sat on the board of a grain-trading, farm chemical and fertiliser firm. Regardless, the protest is emblematic of the tension between progressive agricultural ideas and the deep industrial interests of those who seek to hold onto the status quo that exist in Germany.

EU Agricultural Commissioner Janusz Wojciechowski defended the Farm to Fork strategy in a July 2020 debate with Perdue, saying that Europe 'must [invest in] local farms because it may not be possible to get food from farther away...by linking agriculture more closely to local processing and markets, [Farm to Fork] will

43 European Commission, "From Farm to Fork". 2019: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/farm-fork_en

44 Simon Jessop and Kate Abnett, 'Investors urge Europe to prioritise climate in agriculture reform'. March 21, 2021: <https://www.reuters.com/article/us-europe-agriculture-regulation-investo-idUSKBN2BE00R>

45 Sonny Perdue, 'Europe has forgotten the "farm" in "Farm to Fork"'. Oct. 7, 2020: <https://euobserver.com/opinion/149489>

46 Karen Bradbury, 'Green crosses in German fields a form of "silent protest"'. *Stripes Europe*, Oct. 18, 2019: <https://europe.stripes.com/community-news/green-crosses-german-fields-form-%E2%80%99Csilent-protest%E2%80%9D>

also reduce transport needs', according to *FoodTank's* article, "Leaders from EU and U.S. Debate Farm to Fork Strategy and Future of Global Trade".⁴⁷ Investments in local infrastructure are meant to make food production more efficient while reducing the size of its carbon footprint.

Policy's Effect on Regenerative Agriculture in Europe

Many of the regenerative agriculture experts we interviewed cited the CAP as a key factor that makes shifting away from the conventional, commodity farming system difficult. Benedikt Bösel, an agricultural economist and founder and managing director of Gut & Bösel, said that farmers of all kinds find themselves entrenched in existing systems, which makes transitions to more regenerative ways of farming hard to justify.

'You either have [farmers with difficult] growing conditions who are fighting for their lives, each day and every day [and] cannot change or try something new, or you have a strong group [of farmers] who have good soil, the right amount of money and the right amount of rain, so they earn quite a lot of money and they get subsidies on top, so life's good. Why change?' said Bösel.

The global marketplace has done even more to firmly entrench farmers into a system where scale and crop specialisation fuelled by large capital expenditures for infrastructure and debt leave little room for innovation.

'Most [farmers] have been told that they should produce for the world market', said Bösel. 'That has meant incredible specialisation into single products, which has involved incredible investment costs into machinery, technology, equipment, stables, houses and whatever else is needed. Those kinds of farmers are trapped in that production system and it's incredibly difficult to come out of. If you have debt requirements—most of them have debt far beyond what's healthy—the bank is not going to care if you want more animal welfare. They want their debt requirements each month. Transitioning out of that system is incredibly challenging. This is a huge thing, being stuck in a system financially and emotionally'.

The incentive systems in place do not currently allow for wiggle room to shift farming methods toward more regenerative approaches. For instance, agroforestry in Germany has proven successful in preventing soil erosion there, yet the incremental cost and risk to create and execute an agroforestry plan is prohibitive for most farmers without a subsidy or transition financing to reward this behaviour.

As part of the Farm to Fork proposal, however, roughly €10 billion has been earmarked to fund research and innovation work on food, bioeconomy, natural resources, agriculture, fisheries, aquaculture and the environment, as well as the use of digital technologies and nature-based solutions for agri-food. This investment, along with the intention to provide transitional training and support to farmers adopting more sustainable practices, hopes to ease some of the historical constraints that have made change so difficult for so many farmers.

The potential for systemic change in the EU's CAP could be an accelerant to a new generation of farmers who can more easily build a thriving agricultural operation that also helps to create positive ecosystem benefits. But with the current speed at which the CAP negotiations are progressing, the status quo may remain for years to come.

Brexit's Impact on Food Standards

With continued negotiations and ongoing friction between the two political camps, the path to a full passage of the Farm to Fork proposal remains uncertain. To compound those difficulties, the European Commission is looking at how to spend and share some €1 trillion over the next seven years to fund things like the European Green Deal and other priorities such as border security. With the United Kingdom transitioning out of the EU starting in 2021, an additional loss of up to €75 billion in net contributions means added pressure to budget talks.

Within the United Kingdom, Brexit threatens to drastically reduce the regulations on food quality and sustainability, which has many sustainability-minded groups in the United Kingdom concerned about the kinds of agricultural goods

47 Francesca DiGiorgio, 'Leaders from EU and U.S. Debate Farm to Fork Strategy and Future of Global Trade' *FoodTank*, July 2020: <https://foodtank.com/news/2020/07/leaders-from-eu-and-u-s-debate-farm-to-fork-strategy-and-future-of-global-trade/>

that could enter their market. Namely, the United Kingdom has specific fears about low-quality items such as beef from the United States entering the market without the existing regulations that help to maintain a high standard of quality for goods produced domestically and those imported into the United Kingdom.

The National Food Strategy, a new independent review commissioned by the U.K. government to set out a vision and a plan for a better food system, released a set of initial recommendations on how to preserve food quality standards post-Brexit. Launched in August 2020, part one of the two-part strategy provided pointed recommendations on how to support the country's food system in response to COVID-19 and to transition through Brexit.

While the strategy focusses on a wide range of pressing issues, there is an emphasis on ways to maintain quality standards on imported foods with regard to animal welfare standards. While the specifics of those standards have not yet been published, the report recommends that 'the government should only agree to cut tariffs in new trade deals on products which meet our core standards'. It continued, 'At a minimum, these certification schemes should cover animal welfare concerns and environmental and climate concerns where the impact of particular goods are severe (for example, beef reared on land recently cleared of rainforest)'. More details on the specifics of these standards will be released in 2021 when part two of the National Food Strategy is published.

As part of its departure from the EU, the U.K. government is also phasing out direct subsidy payments over the course of the 2021 to 2027 Brexit transition period. The United Kingdom will begin paying farmers and land managers based on environmental outcomes such as clean air and water, reducing environmental hazards and pollution, promoting a diversity of plants and wildlife, practising high animal welfare standards and the mitigation and adoption of measures to minimise climate change impacts. This new Environmental Land Management (ELM) scheme will roll out in 2024.

Strategies and plans such as the National Food Strategy and the Environmental Land Management scheme are both aimed to fill the vacuum of standards that Brexit will create in the short term. While there is still much to be determined regarding the details of how these standards will pan out, it seems as if Brexit may have a catalysing effect on the sustainability and regenerative agriculture movement in the United Kingdom. Whatever policy framework ultimately becomes law, this effort to preserve high standards and play a more active role in climate change mitigation is a strong sign of how far the national sentiment has come for demanding more from agriculture.



HIGHLIGHTING KEY OPPORTUNITIES

Strategic Recommendations for
Beef+Lamb New Zealand and New Zealand Winegrowers

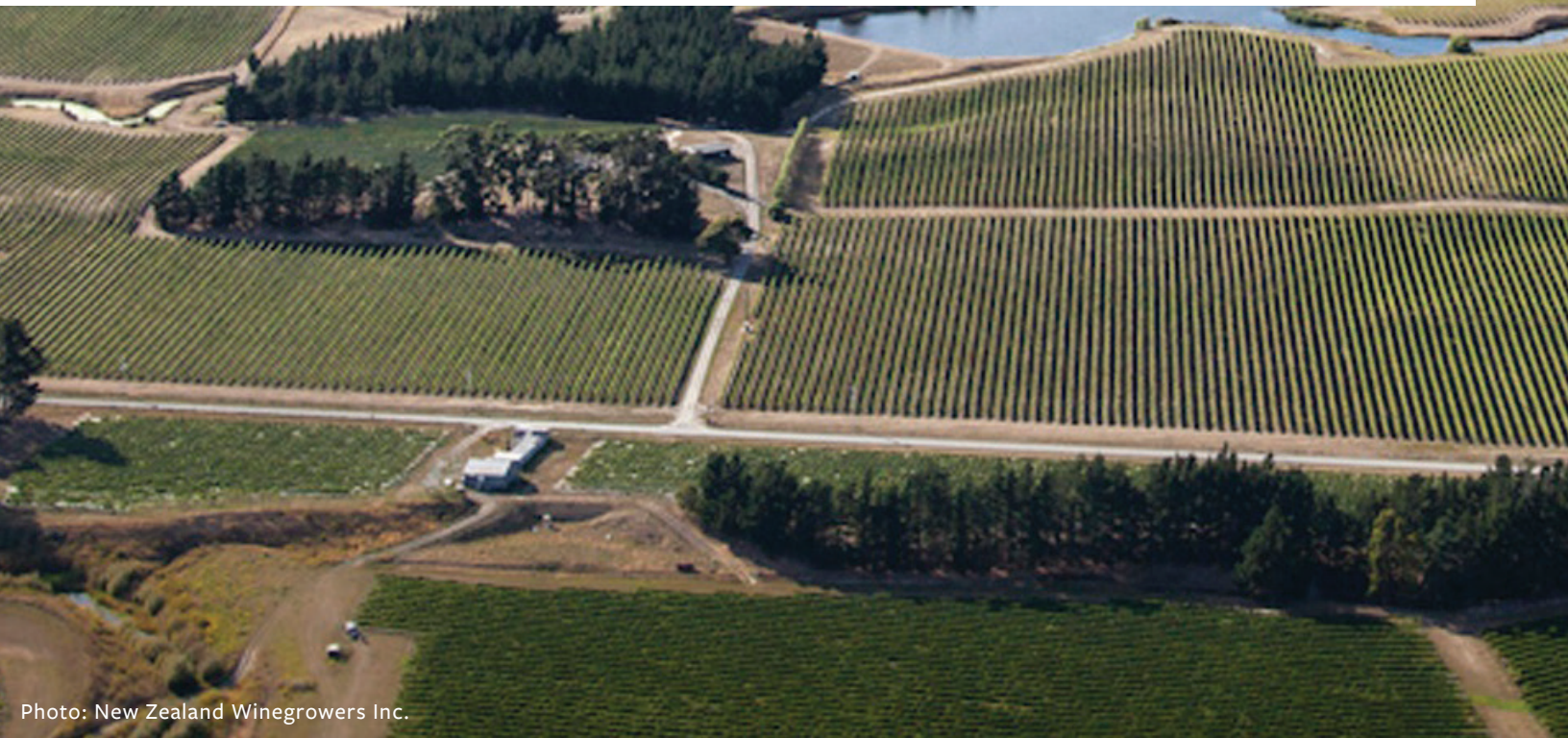


Photo: New Zealand Winegrowers Inc.

Throughout the world, there is debate around regenerative agriculture's ability to reverse climate change, improve soil health, protect biodiversity, improve farmer livelihoods, increase nutrient density and protect waterways. Greater research and exploration are needed to build the business, health and ecological cases for more widespread adoption of regenerative agriculture practices in New Zealand and abroad. Throughout our research, many of the people we interviewed underscored the need for prototype regenerative agriculture systems that could help gather critical outcomes data and serve as a model for others.

One of the central tenets of regenerative agriculture is the concept of interconnectedness. How we treat the land, plants and animals impact the health of the planet, people and farming communities. At the core of regenerative agriculture is a systems approach that creates harmony between our planet and all of the constituents involved in producing and eating food. No one element can be optimised in isolation to regenerate the system as a whole.

A nexus of factors are required to align both on and off the farm to create a more regenerative agricultural system. Shifting farming methods on the farm require education and financial support for farmers. That financial support needs to align with the nuances of a regenerative system, as do all the other ancillary services that support the production, distribution and selling of food. Distribution and processing infrastructure need to be aligned with more biodiverse farms that create a synergistic set of products, not just one monocropped product. Food brands and retailers need to educate consumers on the benefits of a regenerative system and how shifting their shopping and eating habits can play a role in supporting the regenerative agriculture movement in order to provide healthier, tastier food, while mitigating global issues like climate change.

Building a Regenerative Agriculture Prototype

New Zealand is in a strong position to build the regenerative agriculture prototype and show the world what a regenerative agriculture system looks like from start to finish. Whereas the public and private institutions of the United States, United Kingdom and Germany

have demonstrated slowness and lack of coordination, New Zealand has proven it can be nimble and collaborative to accomplish audacious goals.

The remarkable response to the COVID-19 pandemic in New Zealand has caught the attention of the world. In the face of an all-encompassing, existential crisis, the world watched as public and private institutions and citizens all came together to do the hard work of eradicating the virus and restoring normalcy in a quick, efficient way. Climate change, biodiversity loss and soil degradation are just a few of the many other existential threats we face that are equally, if not more, urgent than COVID-19.

We recommend that New Zealand build a working prototype of what a fully regenerative agriculture system would look like. This prototype need not attempt to integrate a large portion of the national food system. Instead, the goal is to assemble a minimum viable group of likeminded food system constituents who can create a microcosm of a regenerative supply chain.

Ideally, this would entail choosing a select subset of agricultural products within New Zealand, spread out over a few landscape categories to introduce enough diversity into the prototype without being so large that the effort becomes too unwieldy to create and manage. Key constituents to this regenerative prototype include:

- **Growers:**
A select group of progressively minded growers across beef, lamb, wine and other food and fibre categories.
- **Processing / Distribution:**
The associated processing and distribution infrastructure that typically supports the growers chosen for the regenerative prototype.
- **Technical Assistance:**
Experts in supporting growers with transition and management of regenerative agriculture systems. This group need not be all New Zealand based.
- **Financing:**
Culturally aligned financing entities—public and/or private, domestic and/or international—who will



support this effort with a nuanced understanding of the financial requirements and returns for regenerative food systems.

- **Retailers & Brands:**

Partnerships with food brands and retailers to create a path to market for regenerative products. Select partners who are supportive of the mission and who can also support storytelling and education to the end consumer.

- **Marketing & Communications:**

Building a strategic and creative storytelling engine that is designed specifically to win the hearts and minds of consumers when it comes to regenerative agriculture.

- **Influencers & Storytellers:**

Trusted beacons of attention where stories about regenerative agriculture can flow through and find their way to the people with the least amount of resistance.

- **Policymakers:**

Public institutions that can help clear roadblocks and create incentives to getting this prototype off the ground.

- **Scientific Research:**

Agricultural expertise and measurement of outcomes so that the results of the prototype are well-captured and can stand up to peer-reviewed scrutiny.

The output of this effort shall be focussed on achieving knowledge and experience for how to build a regenerative food system, not necessarily on sales volume or revenue initially. Moreover, the market focus for the products from this system should be focussed domestically at the start in order to tighten the feedback loop between the consumer and all the other stakeholders on the supply side.

As noted earlier, generational dynamics within the farming community contribute to the overall risk adversity of farming communities. A prototype regenerative agriculture system could gather concrete data and objectively demonstrate the benefits and challenges of regenerative agriculture in New Zealand. Shifting a food system away from the status quo requires a great deal of effort, and having a real world model of a different system would help with the cultural, financial and educational battle to potentially move toward regenerative agriculture.

It would be preferable to focus on selling the regenerative agriculture story to the domestic market first and strengthening the knowledge base on how to do so, before approaching key export countries with the same products. We feel that testing and learning domestically first can strengthen the effort to eventually export New Zealand regenerative products abroad.

Why New Zealand?

New Zealand has a number of structural advantages over the rest of the world that sets it up well to build such a prototype and become the global thought leader in how to put regenerative agriculture into practice.

- **The Movement is Early Days for Everyone:** No country has taken the reins in an integrated way to show the true potential for regenerative agriculture from end to end. While the principles and techniques behind regenerative agriculture are centuries old, the current movement and conversation is truly in an embryonic state. This is meaningful, because regenerative agriculture is still being defined and the opportunity exists to form a strong point of view for New Zealand on how to think about regenerative agriculture.
- **New Zealand is Already Regenerative in Many Ways:** So many of New Zealand’s current agricultural practices – holistic grazing, cover crops, water management, attention to soil health – are already in line with regenerative agriculture practices, whether the farming community chooses to officially call it “regenerative”. Quelling the internal distrust around the term “regenerative” could be accomplished with an open, big tent conversation that makes everyone feel heard and reminds growers that the global community already values many of the things that local farmers have been doing all along. There needs to be a rallying cry that inspires New Zealand farmers to more strongly showcase their commitments and actions to using agriculture as a means to regenerate the state of the planet and people.
- **Māori Culture Provides an Existing Blueprint for Regenerative Principles:** So much of how Māori have approached agriculture and possessed an ingrained philosophy of how people and planet are inextricably interconnected. This matches up in many ways with the current global conversation around regenerative agriculture. While careful consideration needs to be taken on how to appropriately weave Māori heritage with the regenerative agriculture conversation, this heritage is truly unique and cannot be replicated anywhere else on the planet.
- **Regenerative Agriculture Requires a Systems Approach:** A radical mindset shift is needed to coordinate the many stakeholders in the food system toward a regenerative one. New Zealand can draft off of the recent success around its national response to COVID-19 and further cement its reputation on the global stage as a nation that can effectively work together to solve daunting societal issues.
- **New Zealand’s Size Is an Asset to Innovation:** While countries like the United States, United Kingdom and Germany may be able to outproduce New Zealand in terms of tonnage, New Zealand’s smaller size can be harnessed to be nimbler and more innovative. There is a natural limit to how much product New Zealand can theoretically export, but the amount of knowledge and experience it can gain and share in building regenerative food systems has no limit. Products can only scale so much—thought leadership scales infinitely.

Within this national regenerative agriculture prototype, there are additional principles and opportunities that can be deployed. Based on our research, the following are what we recommend New Zealand does within the prototype to further ensure success in building a model of what the future of food looks like in a regenerative way.

KEY OPPORTUNITIES AND RECOMMENDATIONS

Develop National Regenerative Agriculture Principles and Narrative

New Zealand has the potential to take a prominent role in developing both a national framework and narrative around regenerative agriculture that is seen as leading the world. Some of the recommendations we synthesised from our research and interviews for this work include the following actions:

- Develop a national set of regenerative principles that take an inclusive, “big tent” approach.
- Ensure these principles, narratives and programs are producer-led from the outset.
- Honor mātauranga Māori, te ao Māori and Māori agricultural systems of New Zealand’s agricultural system as foundational to the work, steering toward outcomes-based principles that allow for continued improvement over time and in varying regional ecosystems.
- Avoid developing an organic standard that is separate from New Zealand’s regenerative principles. It is easier to start with regenerative principles and take a “big tent” approach, than trying to work around and improve an existing organic standard.



Photo: New Zealand Winegrowers Inc.

- Focus the narratives around your regenerative work on “doing more good”, as opposed to just “doing less harm”.
- Distill the narratives into simpler and distinct marketing that appeals to particular “food tribes” and/or interest areas, such as climate, soil, health, biodiversity, animal welfare, nutrition, rural economic health, clean water, etc.

Express New Zealand’s Unique Essence at Scale

New Zealand has a unique opportunity to identify its own essence and the essence of its place and producers, and to express this fully in the quality, taste and story of its regenerative agriculture products. As other countries and regions are slower to adopt a national set of principles, New Zealand will be able to partner with brands, food companies and retailers to fill a gap as the demand and market grows for regenerative products.

Develop Data, Science, and Narrative around the Nutrient Density of Regeneratively Produced Food

New Zealand has an opportunity to take a leadership role in developing the science and data that will further establish this critical connection between soil and human health. This might include:

- Partnering with an organisation such as the Bionutrient Food Association to do grazing-specific research on nutrient density in New Zealand beef, lamb and wine, ultimately giving New Zealand a market advantage as far as nutrient density.
- Partnering within the healthcare system of New Zealand and elsewhere as a key market opportunity to build the demand needed to fuel a systemic shift toward regenerative agriculture.

Re-Investment in Market and Supply Chain Infrastructure Gaps Necessary to Support Regenerative Agriculture Broadly

One strategy that New Zealand might consider is developing regional regenerative processing hubs, taking a “campus model” approach, to invest in the necessary processing infrastructure, starting in four to five key regions that will attract additional investors with more flexible, patient and regional capital.

As an example of this type of approach, Pipeline Foods, the first U.S.-based supply chain solutions company focussed exclusively on non-GMO, organic and regenerative food and feed, is working with the Organic Grain Collaboration (OGC) to address key challenges in expanding the supply of organic grain in the United States. The collaboration is working directly with farmers and other stakeholders across the supply chain in two regions to develop a regionally appropriate supply chain infrastructure: Aroostook County, Maine, and in the Northern Great Plains. Pipeline Foods has already invested in one organic grain elevator in northern North Dakota and is currently building a grain terminal in Bowbells, North Dakota, providing strategically aligned infrastructure support for the OGC’s Northern Great Plains initiative.

‘At Pipeline Foods, we are focussed on the supply chain infrastructure, at regional scales, that it is going to take to increase the availability of organic and non-GMO grains in the U.S., and then, ideally, other regenerative supply chains’, said Eric Jackson, founder and chairman of Pipeline Foods. ‘This type of collaboration is needed to increase the size and efficiency of regional organic grain supply chains’.

De-Risk the Transition for Producers

Investment into the necessary regional farmer-led initiatives and coalitions, regional processing hubs, and flexible capital structures to support farmers in transition will help fuel a regenerative agriculture movement and provide platforms for farmers to engage proactively with industry and government, as well as with each other. This may include:

- Providing or ensuring there is access to flexible and patient capital for New Zealand producers to execute regenerative farm plans.
- Investing in trusted technical support to these producers, alongside the capital, to ensure each producer has a successful long-term pathway to success and is supported by a network of peers and trusted advocates. This assistance should include the following:
 - Education programs that are hands-on, practical and multi-day—with teachers who have deep farm and ranch experience.
 - Follow-up consultation and support for the producers, so they can work through challenges as they arise;
 - Connecting producers to networks to provide peer support.
- Developing risk sharing strategies with producers, including partnering with brands, food companies and retailers to provide longer-term contracts and brand partnerships directly with New Zealand producers

KEY INITIATIVES

The Global Who's Who of Regenerative Agriculture



REGENERATIVE AGRICULTURE INITIATIVES IN THE US

ACADEMIC & RESEARCH		CPG			
COMMUNICATIONS		SUPPLY CHAIN			
CERTIFICATIONS & STANDARDS		ECOSYSTEM SERVICES		FARMS	
FARMER NETWORKS & TECHNICAL ASSISTANCE				POLICY	
TECHNOLOGY				RETAIL	
INVESTMENT				VERTICALLY INTEGRATED BRANDS	

REGENERATIVE AGRICULTURE INITIATIVES IN THE UK

ACADEMIC & RESEARCH		CERTIFICATIONS & STANDARDS	
      		      	
COMMUNICATIONS	FARMS	CPG	
      	 	    	
		RETAIL	ECOSYSTEM SERVICES
		  	
FARMER NETWORKS & TECHNICAL ASSISTANCE			
           			
POLICY	TECHNOLOGY	INVESTMENT	
  	 	     	

REGENERATIVE AGRICULTURE INITIATIVES IN GERMANY

ACADEMIC & RESEARCH	CERTIFICATIONS & STANDARDS
 	  
COMMUNICATIONS	  
 	
FARMS	
 	 
FARMER NETWORKS & TECHNICAL ASSISTANCE	
       	  
INVESTMENT	ECOSYSTEM SERVICES
 	  

USA

**Bionutrient Food Association**

bionutrient.org

ACADEMIC AND RESEARCH

Bionutrient Food Association is a preeminent organisation working globally to bring forward empirical definitions of nutrient density and study the impact that agricultural practices have on nutrient density. Its Real Food Campaign has engineered a handheld consumer spectrometer designed to test nutrient density at point of purchase. Via this tool, the deeper goal is to connect the economic incentives of consumers to growers to drive full system regeneration. The tool is currently being piloted by farmers across the globe.

Carbon Cycle Institute

Carbon Cycle Institute (CCI)

carboncycle.org

ACADEMIC AND RESEARCH

Carbon Cycle Institute (CCI) aims to stop and reverse climate change by advancing science-based solutions to reduce atmospheric carbon while promoting environmental stewardship, social equity and economic sustainability. Its Ag Carbon Program is advancing carbon farming and regenerative rangeland management that builds soil carbon and critical ecosystem services on ranches, farms and working landscapes.



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

Carbon Management and Sequestration Center at Ohio State University

oardc.osu.edu/facility/carbon-management-and-sequestration-center

ACADEMIC AND RESEARCH

Carbon Management and Sequestration Center (CMASC) conducts research on the best methods for reducing atmospheric CO₂ through sustainable land management practices. Simultaneously, CMASC investigates strategies to enhance food security, improve water use efficiency and reduce poverty.

USA



Chico Center for Regenerative Agriculture and Resilient Systems (CRARS)

csuchico.edu/regenerativeagriculture

ACADEMIC AND RESEARCH

Chico Center for Regenerative Agriculture and Resilient Systems (CRARS) aims to investigate, develop, demonstrate and educate about comprehensive, regenerative practices that both restore and enhance the resiliency of living systems and communities. It develops trans-disciplinary teams and collaborative networks and communication platforms for applied research, learning centres and demonstration sites with partnering farms and universities that foster open dialogue and data sharing to fill gaps in our understanding of regenerative agriculture practices. Critically, it establishes and supports ‘Farmer to Farmer Networks’ for regenerative practices in all production systems that include cohorts of farmers and ranchers for peer support systems.



CROATAN INSTITUTE

Croatan Institute

croataninstitute.org

ACADEMIC AND RESEARCH

Croatan Institute is a nonprofit research institute whose mission is to harness the power of investment for social good and ecological resilience. Its Organic Agriculture Revitalization Strategy (OARS) is a collaborative initiative that is re-envisioning organic food and agriculture as an inclusive economic development strategy for revitalising rural places. In 2019, it published the Soil Wealth: Investing in Regenerative Agriculture Across Asset Classes, a comprehensive analysis of the state of regenerative agricultural finance in the United States, which identified nearly \$50 billion in assets under management in funds that are beginning to integrate regenerative food and agriculture considerations into their investment decision-making, and more than 65 distinct financial mechanisms, instruments and approaches that they placed on a spectrum of readiness for application to regenerative agriculture. Its Rural Regenerative Agriculture District (ROADS) project is a new place-based model for regenerative agricultural financing and community development rooted in special purpose rural districts. It is currently testing the model in four differently targeted geographies across the United States.



Delta Institute

delta-institute.org

ACADEMIC AND RESEARCH

Delta Institute works with communities throughout the Midwest to solve complex environmental challenges. It is creating marketplaces for regeneratively produced products and piloting financial tools to better support farmers transitioning from conventional to regenerative practices.

USA

**Ecdysis Foundation**

ecdysis.bio

ACADEMIC AND RESEARCH

Ecdysis Foundation is a national hub of research ranches and farm hubs that serve to advance the science and educational support for regenerative agriculture practices, led by former USDA scientist Jonathan Lundgren. Within these hubs, it is performing critical regional focussed research and experimentation on practices and tools and translating this research to farm implementation, as well as disseminating this data and providing training to RCDs, NRCS agents and key community level NGOs.

**Grassland 2.0 - University of Wisconsin-Madison**

grasslandag.org

ACADEMIC AND RESEARCH

Grassland 2.0 is a newly formed collaborative at the UW-Madison comprising scientists, educators, farmers, agencies, policymakers, processors, retailers and consumers working to develop pathways for increased farmer profitability, yield stability, and nutrient and water efficiency, while improving water quality, soil health, biodiversity and climate resilience through grassland-based agriculture.

**Health From The Soil Up**

drdaphne.com

ACADEMIC AND RESEARCH

Health from the Soil Up is an initiative that seeks to catalyse collaboration and innovative thinking at the nexus of soil health and human health by hosting annual learning labs that bring practitioners, educators, researchers, funders, students and innovators from public health (medicine) and agriculture to spark dialogue, knowledge acquisition and collaboration between these two fields. The initiative was founded by Daphne Miller, M.D., a clinical professor at University of California San Francisco and a project scientist at the Center for Occupational and Environmental Health at UC Berkeley. Miller's research explores ways to integrate human health and ecosystem health. She is an advisor and consultant to a number of organisations that address health and sustainability and is also a contributing health columnist to the Washington Post. Her books include *Farmacology*, *Health from the Soil Up*, and *The Jungle Effect*.

USA



Michigan State University Center for Regional Food Systems (CRFS)

canr.msu.edu/foodsystems/

ACADEMIC AND RESEARCH

Michigan State University Center for Regional Food Systems (CRFS) engages the people of Michigan, the United States and the world in developing regionally integrated sustainable food systems. Dr. Jason Rowntree, an associate professor of animal science at Michigan State University and an affiliate of CRFS, has obtained more than \$6 million in funding to study how grazing livestock can improve land and mitigate climate change by capturing carbon and providing other ecosystem services. As faculty coordinator of Lake City Experiment Station, his research and extension focusses on forage utilisation of grazing beef cattle, extending the grazing season and forage-finishing. Another facet of his work is to improve economics of small- and medium-sized beef producers through local and regional beef production and distribution system developments.



Noble Research Institute

noble.org

ACADEMIC AND RESEARCH

Noble Research Institute is an independent nonprofit made up of 350 international stakeholders across the industry that research farms across 14,000 acres of southern Oklahoma, with the goal of helping farmers and ranchers improve land stewardship and productivity regionally, nationally and internationally.



Rodale Institute

rodaleinstitute.org

ACADEMIC AND RESEARCH

Rodale Institute is a nonprofit growing the regenerative organic movement through rigorous, solutions-based research, farmer training and consumer education. Widely recognised as the birthplace of the organic movement, Rodale Institute has been the global leader in regenerative organic agriculture for over 70 years. In 2018, it introduced Regenerative Organic Certified™ (ROC), a standard overseen by the Regenerative Organic Alliance, a nonprofit made up of experts in farming, ranching, soil health, animal welfare, and farmer and worker fairness.

USA



SOIL HEALTH
— INSTITUTE —

Soil Health Institute

soilhealthinstitute.org

ACADEMIC AND RESEARCH

The Soil Health Institute aims to safeguard and enhance the vitality and productivity of soil through scientific research and advancement. It identifies gaps in research and adoption, and develops strategies, networks and funding to address those gaps; and ensures beneficial impact of those investments to agriculture, the environment and society. The institute is partnering with Cargill and the US National Association of Conservation Districts to evaluate the profitability of soil health management systems.

TEXAS A&M
AGRI LIFE
EXTENSION

Texas A&M AgriLife Research and Extension Center

agrilifeextension.tamu.edu

ACADEMIC AND RESEARCH

Texas A&M AgriLife Research and Extension Center is home to research and extension education programmes in environmental systems management, water quality, food, feed, fibre, biofuel production, animal nutrition and health, range land restoration, agricultural resource economics, and natural resource conservation and protection. Dr. Teague is a range ecologist with Texas AgriLife and a leader in the regenerative movement. He uses a systems approach in developing land and livestock management practices that sustain natural range land resources and the people depending on the land. His goals are to broaden the understanding of requirements needed to sustain range land resources and economic viability, and generate science-based information to allow producers to improve management practices on range land.



UNIVERSITY OF
CENTRAL FLORIDA

The Florida Ranchland Environmental Services Project at the University of Central Florida

sciences.ucf.edu/biology/bohlen/projects/florida-ranchland-environmental-services-project

ACADEMIC AND RESEARCH

The Florida Ranchland Environmental Services Project (FRESP) at the University of Central Florida is a Payment for Environmental Services (PES) programme in which cattle ranchers in the Northern Everglades region can use their working ranches to provide valuable water-related environmental services. Now in the fourth year of a five-year pilot phase, the programme is based on the idea that ranchers can modify their existing water management systems to retain water and reduce the amount of phosphorus in surface water runoff. In doing so, ranchers help improve water quality and quantity in the Northern Everglades Lake Okeechobee watershed, as well as maintain and enhance wildlife habitat. FRESP also provides ranchers the opportunity to produce a new product, water environmental services, that can provide a new source of income based on managing environmental services.

USA

**The Land Institute**

landinstitute.org

ACADEMIC AND RESEARCH

The Land Institute is a science-based research organisation working to develop an alternative to current destructive agricultural practices. Led by a team of plant breeders and ecologists in multiple partnerships worldwide, its work is focussed on developing perennial grains, pulses and oilseed-bearing plants to be grown in ecologically intensified, diverse crop mixtures known as perennial polycultures.

**The Nature Conservancy**

nature.org

ACADEMIC AND RESEARCH

The Nature Conservancy aims to conserve the lands and waters on which all life depends and has recently begun to focus efforts on regenerative food systems. It partnered with McDonald's, Cargill and Target on a five-year, \$8.5 million project aimed at working with Nebraska farmers to advance soil health practices to help mitigate greenhouse gas emissions and help farmers adapt to climate change. It is working with global traders, input companies and banks to offer attractive long-term financing to farmers who plant their soy on previously cleared lands in South America. It is also partnering with the International Soil Reference and Information Centre and Vizzuality to develop a prototype for a global web-based platform for dynamic soil organic carbon mapping.

**The Quick Carbon Project**

quickcarbon.org

ACADEMIC AND RESEARCH

The Quick Carbon Project is a programme of the Yale School of Forestry and Environmental Studies that aims to create an accessible measurement system that empowers individuals to generate reliable soil carbon data for ecological understanding, decision making and markets. It is actively working on developing a soil carbon measurement protocol that makes use of low-cost field reflectometers made by Our Sci.

USA



UC Davis Agricultural Sustainability Institute

asi.ucdavis.edu

ACADEMIC AND RESEARCH

UC Davis Agricultural Sustainability Institute addresses issues related to food and farming sustainability. It is conducting research on regenerative, conservation and resiliency agriculture. It also houses the Inter-institutional Network for Food, Agriculture and Sustainability (INFAS), a national network of university and college educators, researchers and activists, representing 26 institutions and spanning 20 states, who collaborate with practitioners to increase US food system resilience, illuminate critical trends and common stewardship of public goods essential for food systems, and reduce inequity and vulnerability in the US food system. Its Russell Ranch Sustainable Agriculture Facility is a 300-acre facility dedicated to investigating irrigated and dry-land agriculture in a Mediterranean climate. The hallmark of Russell Ranch's sustainable agriculture research is the Century Experiment. Like the name suggests, scientists plan to conduct research on the same plot of land for 100 years. Started in 1992, the Century Experiment is focussed on tracking how different management practices affect soil health over a long-time scale.



WASHINGTON STATE
UNIVERSITY

Washington State University, Center for Sustaining Agriculture and Natural Resources (CSANR)

csanr.wsu.edu

ACADEMIC AND RESEARCH

Washington State University's Center for Sustaining Agriculture and Natural Resources (CSANR) leads efforts in sustainable agriculture, food and natural resource systems that are economically viable, environmentally sound and socially responsible. CSANR's Soil Health Initiative (SHI), funds research, extension and demonstration of soil health best management practices through a network of Long-Term Agroecological Research and Extension (LTARE) sites across Washington state's diverse agricultural systems. It also established the Climate Friendly Farming Project (CFF) in 2003 to better understand carbon sequestration and greenhouse gas emissions from agricultural systems and to establish long-term agricultural research projects focussed on improving the resiliency of agriculture to a changing climate. The early focus of the project was on dryland wheat, irrigated vegetable and dairy production systems.

USA



A GREENER WORLD

A Greener World

agreenerworld.org

CERTIFICATIONS AND STANDARDS

A Greener World is a portfolio of farm certifications, including Certified Regenerative by AGW, Certified Animal Welfare Approved by AGW, Certified Grassfed by AGW and Certified Non-GMO by AGW. The Certified Regenerative programme is custom designed for each farmer to meet them where they are on their journey. Uniquely, the farmer and their regenerative experts develop a plan for the operation of the land being farmed. This plan is reviewed by a panel of experts that approve the vision for the farm's regenerative journey, which is measured and audited annually. This approach allows for true regional and local flexibility whilst adhering to regenerative principles, giving confidence to consumers and stakeholders. It has the added advantage of being a detailed management plan, allowing the farmer to focus on delivery of the positive attributes.



American Grassfed Association

americangrassfed.org

CERTIFICATIONS AND STANDARDS

From the farm to the marketplace and in government policy, American Grassfed Association (AGA) supports, advocates for and promotes American grass-fed and pasture-based farms and ranches. Its certification programme requires producers to meet a stringent set of standards and pass an annual third-party, on-farm inspection to become approved AGA Certified producers.



Audubon Certified

audubon.org

CERTIFICATIONS AND STANDARDS

The Audubon certification seal brings a broad market appeal that enhances demand by consumers who want options for beef that is sustainably raised and benefits wildlife habitat.

USA



Climate Beneficial Verification Program

fibershed.org/programs/climate-beneficial-agriculture/climate-beneficial-fiber

CERTIFICATIONS AND STANDARDS

Climate Beneficial Verification was designed by Fibershed to support and increase adoption of carbon farming practices on fibre- and dye-producing landscapes. It works with agriculture experts to develop Carbon Farm Plans for participating producers, which are verified every year on participating producer landscapes. It develops markets for Climate Beneficial Verified fibre by sharing educational information with the public, fashion, and textile designers and brands, and by connecting producers to buyers. It also expands support for producers to activate carbon farming practices by working with policymakers, connecting producers to public funding and raising and issuing funds directly through the Carbon Farm Seed Fund. Its focus is on a verification process within the Northern California Fibershed, and it collaborates with peer communities through its Fibershed Affiliate Network to develop place-based verification systems.



Climate Neutral

climatenetural.org

CERTIFICATIONS AND STANDARDS

Climate Neutral is a nonprofit organisation that has built a simple set of tools and a certification for brands that makes carbon footprinting more accessible and sets clear guidelines for carbon offsetting. Over one hundred brands have been certified, including Allbirds, Alter Eco and Kickstarter. Climate Neutral hopes to decarbonise the world through its net-zero certification. With its new software-based measurement tool, the Brand Emissions Estimator (BEE), Climate Neutral claims it can calculate the approximate carbon footprint of a company.

USA

**Demeter International**

demeter.net

CERTIFICATIONS AND STANDARDS

Demeter International is the brand for products from Biodynamic Agriculture. Only strictly controlled and contractually bound partners are permitted to use the brand. A comprehensive verification process insures strict compliance with the International Demeter Biodynamic Standards, as well as applicable organic regulations in the various countries, without a gap, through every step, from agricultural production to processing and final product packaging. The holistic Demeter requirements exceed government-mandated regulations. Not only do they exclude the use of synthetic fertilisers and chemical plant protection agents in agricultural crop production, or artificial additives during processing, but also require very specific measures to strengthen the life processes in soil and foodstuffs. Demeter farmers and processors actively contribute towards the shaping of a future worth living for, creating healthy foods of distinctive tastes, truly 'Foods with Character'. Demeter – the Brand you can trust in.

**NSF International**

nsf.org

CERTIFICATIONS AND STANDARDS

NSF International is an independent organisation that facilitates standards development, product certification, testing, auditing, education and risk management for public health and the environment. NSF offers a wide range of services to support regenerative supply chains, including benchmarking of current practices, regenerative sourcing strategy, measurement and certification strategy. It is a design partner of the Soil Carbon Initiative.

**Regenerative Organic Alliance**

regenorganic.org

CERTIFICATIONS AND STANDARDS

Regenerative Organic Alliance is a nonprofit organisation that holds the Regenerative Organic Certification (ROC) for food, fibre and personal care ingredients. ROC is a holistic, high-bar certification that encompasses three pillars: soil health, animal welfare and social fairness. The ROC is backed by Patagonia, Rodale and Dr. Bronners.

USA

**Savory Institute**

savory.global

CERTIFICATIONS AND STANDARDS

Savory Institute is a nonprofit based in Boulder, Colorado, with 48 regional learning hubs around the globe. Savory Institute Land to Market Program is the world's first verified regenerative sourcing solution for meat, dairy, wool and leather. The programme connects conscientious brands, retailers and consumers directly to supply derived from land that is verified to be regenerating. Founded in 2009, the Institute has trained nearly 12,000 farmers, ranchers and pastoralists, and influenced management of over 13 million hectares of grasslands through the adoption of Holistic Planned Grazing – a process that mimics ancestral grazing patterns of wild herbivores that co-evolved with healthy grassland ecosystems. The Savory Global Network comprises regionally based Savory Hubs (learning centres), Accredited Professionals (field educators), and Regenerating Members (recurring monthly donors) that, together, are their scale-up mechanism for increasing adoption. Savory Hubs are all locally owned and locally operated training centres that, through Accredited Professionals, provide HM training, resources and implementation support to local farmers and ranchers.

**Soil Carbon Initiative**

soilcarboninitiative.org

CERTIFICATIONS AND STANDARDS

Soil Carbon Initiative is an outcome-based, verifiable standard designed to improve soil health and build soil carbon by encouraging the shift to regenerative agricultural practices. Created by The Carbon Underground, Green America, Danone North America, Ben & Jerry's, MegaFood and over 150 other stakeholders, the standard gives companies third-party verification of climate action and impact and a tool to motivate soil health improvement in their supply chains.

**AgFunderNews (AFN)**

agfundernews.com

COMMUNICATIONS

AgFunderNews publishes daily, original news and investment reports about the burgeoning foodtech and agtech ('agri-foodtech') startups and venture capital industries across the globe. It frequently covers issues and technologies related to regenerative agriculture.

USA



Animal Agriculture Reform Collaborative (AARC)
multiplier.org/project/animal-agriculture-reform-collaborative/

COMMUNICATIONS

Animal Agriculture Reform Collaborative is a movement alignment hub facilitating bold collaborative action to accelerate the shift towards regenerative agriculture, mainly high-welfare, pasture-based animal agriculture systems. The 45 participating organisations represent a wide-range of constituencies, including farmers and ranchers, rural communities, communities of colour, and environmental, worker, public health and animal welfare advocates. They work together to accelerate the transition to a regenerative agricultural system by demanding bold policy and market changes. Its narrative alignment work with movement leaders across the space focusses on developing a shared narrative across their organisations through extensive engagement, training, creative discussion and deep listening.



Center for Food Safety
centerforfoodsafety.org

COMMUNICATIONS

Center for Food Safety's (CFS) mission is to empower people, support farmers and protect the earth from the harmful impacts of industrial agriculture. Through groundbreaking legal, scientific and grassroots action, it protects and promotes your right to safe food and the environment. It promotes the power of soil and regenerative agriculture as a climate change solution by producing high-quality videos, sharing the films on the international stage, and creating original graphics and blogs. Its 'Dig Deeper' series features two-minute video interviews with leading soil experts covering a range of topics and an accompanying website, soilsolution.org. It also recently released Regenerating Paradise, a four-part video series featuring interviews with farmers in Hawai'i who have incorporated healthy soil techniques at their farms. Most recently, it launched Opt Out of Industrial Meat, a website and report outlining the key reasons CAFO-raised products are unhealthy for people, animals and the environment, as well as important information on accessing plant and animal proteins that promote health and protect the planet through regenerative agricultural practices.



Civil Eats
civileats.com

COMMUNICATIONS

Civil Eats is a daily news and commentary service providing critical thought about the American food system. It publishes critical reporting on equity, social justice, farmer welfare and ecological health through our agriculture policies and programs.

USA	
 <p>FOOD FOR CLIMATE LEAGUE</p>	<p>Food for Climate League (FCL) foodforclimateleague.org</p> <p>COMMUNICATIONS</p> <p>Food for Climate League (FCL) is a nonprofit research and communications collaborative working to create expertly developed and tested narratives that celebrate foods great for us and great for the planet, which can be implemented by businesses, governments and organisations around the world.</p>
 <p>foodtank</p>	<p>Food Tank foodtank.com</p> <p>COMMUNICATIONS</p> <p>Food Tank is a nonprofit global publication and advocacy network that provides a place for farmers and producers, policymakers and government leaders, researchers and scientists, academics and journalists, and the funding and donor communities to collaborate on providing sustainable solutions for our most pressing environmental and social problems. It has been working for years to highlight and promote innovative, on-the-ground solutions to the critical problems in the food and agriculture sectors, including a focus on regenerative agriculture.</p>
 <p>Grassfed Alliance</p>	<p>Grassfed Alliance grassfedalliance.org</p> <p>COMMUNICATIONS</p> <p>Grassfed Alliance helps authentic, grassfed meat and dairy producers around the United States tell their stories and market their products. In 2020, it started a consumer research project to further understand what brings consumers to grassfed meat and dairy and regenerative agriculture in general. The goal is to uncover what the most important emotional entry points are for consumers so that the regenerative agriculture community can create more impactful, focussed messaging.</p>

USA

**Kiss the Ground**

kisstheground.com

COMMUNICATIONS

Kiss the Ground is an education and advocacy nonprofit that focusses on awakening the narrative around regenerative agricultures through videos, infographics, photos, a book, stories, blogs and a speaker training course. In 2020, it released the Netflix documentary, Kiss the Ground. The Kiss the Ground Impact Fund supports farmers, ranchers and land stewards from around the globe in their transition to regenerative practices that heal the soil, revive ecosystems, increase farmer wellbeing and help balance the climate. It activates Soil Advocates to lead this movement in their communities, supports over 3,000-plus virtual and outdoor screenings on farms across the United States in partnership with Ro*co Films, and provides the brand new Kiss the Ground Educational Film (coming in January 2021) free to over 100,000 schools in 44 countries.

**Project Drawdown**

drawdown.org

COMMUNICATIONS

Project Drawdown is an organisation seeking to help the world reach 'Drawdown', the future point in time when levels of greenhouse gasses in the atmosphere stop climbing and start to steadily decline. Since the 2017 publication of the New York Times bestseller, Drawdown, the organisation has emerged as a leading resource for information and insight about climate solutions. It continues to develop that resource by conducting rigorous review and assessment of climate solutions, creating compelling and human communication across mediums, and partnering with efforts to accelerate climate solutions globally.

**Regeneration International**

regenerationinternational.org

COMMUNICATIONS

Regeneration International (RI) works to promote, facilitate and accelerate the global transition to regenerative food, farming and land management for the purpose of restoring climate stability, ending world hunger, and rebuilding deteriorated social, ecological and economic systems. It provides information and resources to its network of more than 250 international partners and Regeneration Alliances throughout the world in South Africa, India, Mexico, Guatemala, Belize, Canada and the United States. RI also engages in farmer training through partnerships with Via Organica and its teaching farm and the Main Street Project's regenerative poultry project.

USA



Regenerative Agriculture Podcast

regenerativeagriculturepodcast.com

COMMUNICATIONS

Hosted by John Kempf, Founder of Advancing Eco Agriculture (AEA), the Regenerative Agriculture podcast is for professional growers looking to greatly increase crop quality, yield and profit. It provides actionable information about growing that can be implemented right away to increase crop quality, yields, pest resistance and climate resilience in order to regenerate soil health, and most important, increase farm profitability.



REGENERATIVE
RISING

Regenerative Rising

regenerativerising.org

COMMUNICATIONS

Regenerative Rising convenes influencers, innovators and producers from agriculture, fashion, beauty, investment, and civic and nonprofit communities to exchange ideas and strategies that elevate business and farming practices towards regenerative practices.



ReGenFriends

regenfriends.com

COMMUNICATIONS

ReGenFriends™ is a customer-centric, diverse and inclusive global platform for businesses, organisations and customers to come together and promote regenerative (net-positive) business practices. ReGenFriends™ spans Fortune 50 to startup companies working in consumer goods, finance, regulatory, tech, food, agriculture, fashion, logistics, renewables and more.



Soil Centric

soilcentric.org

COMMUNICATIONS

Soil Centric is a nonprofit dedicated to accelerating public engagement in regenerative agriculture. Its website highlights the opportunities, resources and pathways for widespread participation in regenerative agriculture.

USA



The Carbon Underground

thecarbonunderground.org

COMMUNICATIONS

The Carbon Underground is an international outcomes-based organisation focussing on creating the tools, alliances and opportunities to achieve scale at efforts proven to draw down carbon and mitigate the climate crisis. It is building a diverse coalition of businesses, organisations, schools and governments to create global climate stability through the widespread transition of farms and ranches from industrial into regenerative enterprises. Its main focus is on developing communications campaigns that spread the message of regenerative farming and ranching. It is also bringing industry stakeholders together to develop a common definition for regenerative agriculture. It is a design partner of the Soil Carbon Initiative.



Annie's

annies.com

CPG

Annie's is an American organic food company owned by General Mills. In 2018, it partnered with Montana farmers to produce limited-edition Organic Mac & Cheese and Organic Bunny Grahams made with certified organic ingredients using regenerative farming practices. In 2019, it launched Version 2.0 of the Regenerative Agriculture Self-Assessment, a tool for farmers to understand and measure their agricultural practices with the principles of regenerative agriculture. It has partnerships with organisations such as the Organic Farming Research Foundation and The Stone Barns Center for Food and Agriculture to help trigger industry engagement and research on regenerative systems.



Bonterra Organic Vineyards

bonterra.com

CPG

Bonterra wines are made from organically farmed grapes and Biodynamic® vineyards in Mendocino County, California. In partnership with Pacific Agroecology of Davis, California, it conducted a study in 2017–18 to discover how farming choices affect organic carbon storage in soil and above-ground plants. The study's findings indicate that organic and other types of regenerative agriculture have a positive impact on soil health and encourage us to continue exploring the dynamic relationship between soil and climate resilience.

USA

**Danone**

www.danone.com

CPG

Danone is a global, purpose-driven food and beverage company with a diverse portfolio of dairy, plant-based and water brands, and it continues to expand its regenerative farming program. In 2017, it launched a multi-year, multi-million-dollar soil health research program bringing together experts and academics to build best-in-class soil health programs to benefit farms and communities across its North America portfolio. Now completing its third year, the research programme has nearly tripled to more than 82,000 acres, inclusive of 28,000 organic acres, across the United States and Canada. Over the next two years, the company aims to collaboratively establish goals with farmer partners, pilot innovative technologies to drive change, launch industry leading tools and programs to encourage greater regenerative management adoption, finance projects to accelerate more impact, and achieve enrollment of 100,000 acres under the regenerative agriculture program. In 2020, Danone announced a partnership with rePlant Capital, a financial services firm dedicated to reversing climate change, to invest up to \$20 million dollars to support Danone North America's farmer partners with expenses related to converting to regenerative or organic farming practices.

**Dr. Bronner's**

drbronner.com

CPG

Dr. Bronner's is a producer of organic soap and personal care products. It is a Regenerative Organic Certified (ROC) pilot participant and helped lead the development of the certification.

**EILEEN
FISHER**

Eileen Fisher

eileenfisher.com

CPG

Eileen Fisher is a women's clothing brand that launched Regenerative Wool, a fibre that is helping to restore grasslands in Patagonia and fight climate change. The Regenerative Wool for Climate Project provides upfront investment necessary for growers to take immediate steps to improve their soil's health. The initiative is the first of its kind in the wool industry.

USA	
	<p>Epic Provisions epicprovisions.com</p> <p>CPG</p> <p>Epic Provisions creates 100% grass-fed, animal-based protein bars and snacks that are Paleo friendly, gluten free and low in sugar. It was the first food brand to receive Savory Institute's Land to Market Ecological Outcome Verification in 2018. It was acquired by General Mills in 2016.</p>
	<p>Fetzer Vineyards fetzer.com</p> <p>CPG</p> <p>Fetzer Vineyards is the largest organic grape grower in the United States, certified by California Certified Organic Farmers. It has 960 acres of organic vineyards in Mendocino County, which includes 260 acres of biodynamic vineyards certified by Demeter Association. It incorporates grazing sheep into its vineyards for weed control, soil fertilisation and promoting biodiversity. It also increased its solar capacity and sequesters carbon by maintaining natural oak woodlands and riparian habitat on about 45% of its land as well as by nurturing cover crops to remove the need for synthetic chemicals.</p>
	<p>Gaia Herbs gaiaherbs.com</p> <p>CPG</p> <p>Gaia Herbs is a leading US herbal brand utilising organic and regenerative methods from seed to shelf.</p>

USA

**General Mills**

generalmills.com

CPG

In 2019, General Mills announced it would apply regenerative agricultural practices to 1 million of its farmer partners' acres by 2030, about a quarter of the land from which it sources ingredients in North America, as well as commit to achieving net zero emissions by 2050. It takes a holistic, principles-based approach that regenerative agriculture strives to strengthen ecosystem and community resilience. Its outcomes-based approach seeks to drive improvements in the following areas: economic resiliency in farming communities, soil health, water, biodiversity, and cow and herd well-being. It currently has three regenerative agriculture pilots underway in its key sourcing regions: an oat pilot in the Northern Plains region that covers North Dakota and the Canadian provinces of Manitoba and Saskatchewan; a wheat pilot in the Southern Plains of Kansas; and a dairy pilot in the Great Lakes Region, specifically Michigan. It has developed an open-source self-assessment app available to anyone interested in implementing regenerative practices. It is also developing soil health academies and individualised coaching for farmers. Several of its brands are already working directly with farmers that use regenerative practices. Annie's, for example, introduced two limited-edition regenerative products in 2019: mac and cheese and cookies. EPIC Provisions sources from livestock producers who raise animals on regenerative farms.

**Happy Family Organics**

happyfamilyorganics.com

CPG

Owned by Danone, Happy Family Organics is the fastest growing organic baby food brand in the United States. In February 2020, it announced a new product line, Happy Baby Organics Regenerative & Organic baby food. This new line is made with ingredients grown using regenerative farming practices.

USA

**Hope Well Wine**

hopewellwine.com

CPG

Growing up working in the vineyard and winery, Mimi gained such an appreciation for the industry that she promptly left home after high school. Armed with a BA in history and classics from Tulane University, Mimi spent the next year working in various National Forests across the west. Her adventures fuelled her passion for studying botany, forestry and ecology. Mimi earned her MS from Oregon State University in Forest Science, and spent the next several years working as a botanist and ecologist for the Forest Service, living in the backcountry. She could never get past the longing for the vineyard, and working with the vines. Mimi returned to Bethel Heights in 2005, along with her cousin and childhood best friend Ben to take the helm as second-generation winegrowers and owners. In 2015 Mimi left Bethel Heights to focus on her wine, her farm and vineyard, Hope Well, and also works with the amazing team at Lingua Franca on their vineyards and farm.

**Maple Hill Creamery**

maplehill.com

CPG





Maple Hill Creamery is the first 100% grass-fed organic dairy in the United States. It works with its network of organic, grass-fed farmers to develop and implement practices that result in the regeneration of the land through the management of organic grass-fed cows.

**Moonshot Snacks**

moonshotsnacks.com

CPG

Moonshot Snacks makes carbon natural crackers from regeneratively sourced grains. The CPG brand was developed by Planet FWD, a company on a mission is to help tackle climate change by making it easier to bring climate friendly products to market. Its sustainable sourcing software help brands create regenerative supply chains, helping to reduce the cost and complexity of bringing sustainable and carbon neutral food products to market.

USA	
	<p>Native American Natural Foods / Tanka Bar tankabar.com</p> <p>CPG</p> <p>Native American Natural Foods is a food company with products made from regenerative bison. Tanka Bar works with Native American communities in United States on regenerative meat products and land stewardship.</p>
	<p>Nourished by Nature nourishedbynature.us</p> <p>CPG</p> <p>Founded by Gabe Brown, Nourished by Nature is a direct-to-consumer brand selling regenerative, locally raised grass-fed and grass-finished beef and lamb, pastured-pork, free-range eggs, honey and a wide variety of garden produce.</p>
	<p>ORGANIC INDIA organicindiausa.com</p> <p>CPG</p> <p>ORGANIC INDIA's tea infusions and whole herb supplements are rooted in Ayurveda, the ancient health system of India. Its herbs are grown through biodynamic, bio-regenerative agriculture practices, which support regenerating thousands of acres of farmland and forests in India.</p>
	<p>ORGANIC VALLEY organicvalley.coop</p> <p>CPG</p> <p>Organic Valley is America's largest cooperative of organic farmers and one of the nation's leading organic brands. As a leader in pasture-based, regenerative organic farming, Organic Valley works with nature, not against it. In 2021, it launched a pilot programme that uses satellite photography to measure pasture health on its dairy farmers. The company expects that its farmers will be able to capture at least a 20% increase in pasture utilisation through the use of this technology.</p>

USA



patagonia
PROVISIONS®

Patagonia Provisions

patagoniaprovisions.com

CPG

Patagonia Provisions was created as a way to broaden Patagonia's environmental mission by partnering with forward-thinking farmers, ranchers and fishermen, and offers a variety of regeneratively sourced organic food. Patagonia Provisions has introduced a varied line of mission-based food products intended to address critical environmental issues while establishing a model to help restore the food chain.

**PepsiCo**

www.pepsico.com

CPG

In 2021, PepsiCo committed to spreading regenerative farming practices to 7 million acres of cultivated land, the equivalent of its entire agricultural footprint by 2030.

**Robert Hall Winery**

roberthallwinery.com

CPG

Robert Hall Winery is a California winery that launched a living case study for the wider wine community to learn about regenerative viticulture through biodynamic farming techniques, comparing the results with their 40 acres of sustainably farmed vineyards. Through the study, it aims to understand regenerative farming practices and their effect on the vineyards' ability to sequester carbon and overall quality effects on soil, fruit and wine.

**Seven Sundays**

sevensundays.com

CPG

Seven Sundays is a Certified B Corp that makes organic, regenerative muesli and grain-free cereal. Sourced from small family farms in the Midwestern United States, its sourcing practices help to promote crop diversity and soil health.

USA

**Tablas Creek**

tablascreek.com

CPG

Tablas Creek Vineyard, in Paso Robles, California, has taken part in a pilot programme for a Regenerative Organic Certification (ROC). Tablas Creek Vineyard was already carbon farming and is certified as organic and biodynamic. When he was approached to join the pilot program, viticulturist Jordan Lonborg said that the human aspect of it made a difference.



» BY APPLGATE™ »

The New Food Collective

thenewfoodcollective.com

CPG

Launched by Applegate Farms, a subsidiary of Hormel Foods, The New Food Collective is a premium brand featuring pasture-raised meats and small-batch production methods. It sources meat from small farms in Georgia, Kentucky and Missouri that use regenerative agricultural methods. Through its partnership with the Savory Institute, it aims to break ground on a new Land to Market standard for regeneratively raised hogs and chicken.

**Timberland**

timberland.com

CPG





Global outdoor lifestyle brand Timberland has partnered with Savory Institute and Other Half Processing to identify, aggregate and connect early-adopter regenerative ranches with its large-scale tannery partners to help build a regenerative supply chain for the footwear and apparel industry.

**Troon Vineyard**

troonvineyard.com

CPG

Troon Vineyard is a biodynamic, regenerative winery and vineyard in Oregon's Applegate Valley.

USA	
	<p>Unilever unilever.com</p> <p>CPG</p> <p>In 2020, Unilever set out a new range of measures and commitments designed to improve the health of the planet. It committed to achieving Net Zero emissions from all its products by 2039; to working with a new generation of farmers and smallholders, driving programmes to protect and restore forests, soil and biodiversity; and to working with governments and other organisations to improve access to water for communities in water-stressed areas. Unilever’s brands will collectively invest €1 billion in a new dedicated Climate & Nature Fund.</p>
	<p>Union Snacks unionsnacks.com</p> <p>CPG</p> <p>Union Snacks produces meat-based trail mix squares and charcuterie chips made from regeneratively grown ingredients and sustainably sourced meats. Union is part of the Savory Institute’s Land to Market Program.</p>
	<p>White Leaf Provisions whiteleafprovision.com</p> <p>CPG</p> <p>White Leaf Provisions launched the first line of 100% regeneratively farmed, biodynamic baby and family foods nationwide.</p>
	<p>Wholesome Meats getwholesome.com</p> <p>CPG</p> <p>Wholesome Meats is a Texas-based beef brand dedicated to accelerating the consumer adoption of regenerative agriculture. Offering the most delicious and nutritious premium ground beef, Wholesome Meats simultaneously heals the planet through regenerative grazing practices.</p>

USA



Carbon Yield
carbon-yield.com

ECOSYSTEM SERVICES

Carbon Yield helps farmers get paid to restore their soil and institute a healthy, profitable and growing system. It navigates the carbon market on farmers' behalf by cataloguing, registering and verifying their carbon credits. It negotiates carbon offset purchase agreements with institutional buyers and shares the profits with its farming partners.



Ecosystem Services Market Consortium (ESMC)
ecosystems-services-market.org

ECOSYSTEM SERVICES

Ecosystem Services Market Consortium (ESMC)'s mission is to advance ecosystem service markets that incentivise farmers and ranchers to improve soil health systems that benefit society. ESMC LLC is a member-based organisation launching a national scale ecosystem services market for agriculture to recognise and reward farmers and ranchers for their environmental services to society by 2022. ESMC members represent the spectrum of the agricultural sector supply chain.



Hudson Carbon
hudsoncarbon.com

ECOSYSTEM SERVICES

Hudson Carbon is a nonprofit, on-farm soil laboratory and research institute that studies how regenerative organic farming can maximise carbon capture and restore ecosystems. It is launching an e-commerce carbon marketplace that will sell carbon offsets directly from farms and will share its expertise to scale practical solutions to restore the carbon cycle.



Indigo Ag
indigoag.com

ECOSYSTEM SERVICES

Indigo Ag is a carbon marketplace that supports farmers in their transition to more sustainable practices. Indigo has worked with the Climate Action Reserve and Verra – through their Verified Carbon Standard (VCS) programme – to help develop innovative methodologies for monitoring, quantifying, verifying, and reporting net on-farm greenhouse gas emissions reductions and removals. Corporate buyers for its carbon credits include Barclays, JPMorgan Chase, Shopify, IBM, Boston Consulting Group, Dogfish Head Craft Brewery, Givewith and New Belgium Brewing.

USA

**NativeEnergy**

native.eco

ECOSYSTEM SERVICES

NativeEnergy is a carbon offset provider working to ensure organisations achieve their sustainability goals. In 2019, it launched the Montana Improved Grazing Project, which provided ranchers with financial support for implementing regenerative grazing practices. It started with 35,000 acres under management and aims to expand to 250,000 acres by 2021.

**Nori**

nori.com

ECOSYSTEM SERVICES

Nori is building the open source market infrastructure to allow for carbon removal projects to measure and monetise their activity. Its voluntary marketplace, based on blockchain technology, will enable carbon removal suppliers to connect directly with buyers, improve efficiency and reduce costs. Its first carbon removal methodology is with farmers on U.S. croplands employing regenerative agricultural practices. Carbon removals are quantified and verified by an independent third party before being listed in the marketplace.

**REGEN
NETWORK****Regen Network**

regen.network

ECOSYSTEM SERVICES

Regen Network's Regen Registry is an open marketplace for climate solutions that allows land stewards to sell their ecosystem services directly to buyers around the world. Using distributed ledger technology, satellite remote sensing and Ecological State Protocols, Regen Network monitors on-the-ground conditions and generates trusted attestations about the ecological state. Its Ecological State Protocols tracks changes of land, oceans and watersheds. Its open platform is designed to run diverse applications such as Regenerative Carbon Credits, Supply Chain Transparency, Reforestation Monitoring and investment vehicles such as Ecological Bonds. In 2020, it began the first sale of "CarbonPlus Grassland Credits" for holistic grazers. These credits will represent verified carbon sequestration and a suite of other benefits.

USA

**Apricot Lane Farm**

aricotlanefarms.com

FARMS

Apricot Lane Farm is a 218-acre farm that aims to build soil health, maximise biodiversity and regeneratively grow the most nutrient-dense food possible. The farm is certified organic, biodynamic and regenerative organic (ROC). It was featured in the film, *Biggest Little Farm*.

**Brown's Ranch**

brownsranch.us

FARMS

Brown's Ranch is a 5,000-acre ranch in Bismarck, North Dakota, that has been practising no-till farming since 1993. It practises rotational grazing as a means of regenerating their land.

**Hawthorne Valley Farm**

farm.hawthornevalley.org

FARMS

Hawthorne Valley Farm (established in 1972) is a diversified, 900-acre Demeter-certified 650A Biodynamic® farm in upstate New York. The farm is also USDA-certified organic and Animal Welfare Approved.

**Paicines Ranch**

paicinesranch.com

FARMS

Paicines Ranch is a project of the No Regrets Initiative. Paicines Ranch is pioneering agroecological solutions to regenerate our landscape through a biologically oriented approach to farming. The Paicines Ranch consists of approximately 7,000 acres of rangeland, 550 acres of row crop ground and 25 acres of vineyard, all certified organic. In all three areas it is making changes to move towards more perennial systems, more complexity and more diversity.

USA

**Pie Ranch**

pieranch.org

FARMS

Pie Ranch is a regenerative farming and food system education centre that cultivates a healthy and just food system from seed to table through food education, farmer training and regional partnerships. In 2019, it launched the Cascade Regenerator, a farmer incubator programme at the neighbouring Cascade Ranch on 418 acres of land that aims to increase equity, ownership and wealth-building opportunities for under-resourced farmers of colour. Due to COVID-19, the farm has ceased its food education and farmer training programmes for now.

**Polyface Farm**

polyfacefarms.com

FARMS

Polyface Farm is owned and operated by Joel Salatin and has been at the forefront of grass-based farming for 40-plus years. The farm practices are built on the efficiencies that come from mimicking relationships found in nature and layering one farm enterprise over another on the same base of land.

**Soul Fire Farms**

soulfirefarm.org

FARMS

Soul Fire Farms is an Afro-Indigenous centred community farm in New York committed to uprooting racism and seeding sovereignty in the food system. Its food sovereignty programmes reach over 10,000 people each year, including farmer training for Black and brown growers, reparations and land return initiatives for northeast farmers, food justice workshops for urban youth, home gardens for city-dwellers living under food apartheid, doorstep harvest delivery for food-insecure households, and systems and policy education for public decision-makers.

**Stone Barns Center for Food and Agriculture**

stonebarnscenter.org

FARMS

Stone Barns Center for Food and Agriculture is a nonprofit organisation on a mission to create a healthy and sustainable food system that benefits us all. It convenes change makers, trains farmers, educates food citizens and develops agroecological farming practices.

USA


Sylvanaqua Farm

sylvanaqua.com

FARMS

Sylvanaqua Farm is an Indigenous- and Black-owned farm raising chicken, eggs, pork, beef and more on pastures and forests in the northern neck of Virginia. Founded by a member of the Choptico Band of Piscataway Indians, it places a heavy emphasis on the Indigenous ethics, values and knowledge serving as the (often unacknowledged) foundation of the modern permaculture movement, and the Indigenous worldview necessary to ensure the sustainable stewardship of natural resources. Their goal is to partner with other farmers, leveraging one another's resources and expertise to create a co-op that produces enough food to supply several farmer-owned, full-time markets in the Washington, D.C., area.


TerraPurezza

terrapurezza.com

FARMS

Texas-based TerraPurezza is a regenerative farm and educational centre that advocates for agricultural practices to enhance productivity through soil regeneration, proper water conservation practices and comprehensive management. The startup has partnered with Willie Nelson's Luck Ranch to implement regenerative land, water and resource management techniques to transform the 500-acre farm and to collect data that proves the viability of regenerative agriculture.


TomKat Ranch

tomkatranch.org

FARMS

TomKat Ranch is an 1,800-acre, grass-fed cattle ranch in the San Francisco Bay Area that aims to demonstrate the practices and benefits of regenerative ranching and support the research and tools that can help it spread. It uses ecological monitoring to assess the effects of its management and inform ranch-wide planning. It freely shares these data to foster conversations about range land management, support conservation science and provide transparent, meaningful information about its practices and outcomes. Over the next five years, it aims to inspire the the transition of one million acres of California range land to regenerative management.

USA

**Vilicus Farms**

vilicusfarms.com

FARMS

Vilicus Farms is an organic, dryland crop farm in Northern Hill County, Montana. It grows a diverse array of organic heirloom and specialty crops, with cropping practices focussed on soil-building and carbon sequestration, pollinator-friendly conservation tactics and minimum disturbance tillage practices. Its Vilicus Training Institute advances organic farming and land stewardship across the Northern Great Plains through peer-to-peer learning and apprenticeships. Current projects include mapping the mechanisms that foster risk/reward sharing and transparency in supply chains for organic crops, scaling up biodynamic grain production through farmer-to-farmer convening and documenting examples of incubating new agrarians into at-scale operations.

**White Oak Pastures**

whiteoakpastures.com

FARMS

White Oak Pastures is a 3,200-acre, 152-year-old family farm in Georgia that focusses on regenerative land management, humane animal husbandry and revitalising their rural community. In 2019, White Oak and General Mills, which buys the ranch's beef for its Epic jerky line, published a life-cycle analysis that found the farm offsets at least 100% of its grass-fed beef carbon emissions and as much as 85% of the farm's total carbon emissions.

**Advancing Eco Agriculture**

advancingecoag.com

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Advancing Eco Agriculture works with U.S. growers to create customised crop programmes, combining its biological and mineral nutrition products with regenerative practices to improve crop quality, yields and disease and insect resistance whilst regenerating soil health.

USA



**ECONOMIC +
ENVIRONMENTAL
RISK COALITION**

AGree Coalition

foodandagpolicy.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Housed at Meridian Institute, the AGree Economic and Environmental Risk Coalition creates a bridge between positive environmental outcomes and profitability for farmers and ranchers. It is developing a tool that will make it easier for any agricultural lender to consider soil health in their risk ratings and contribute to a shift in lending practices that favours farmers who use conservation and regenerative practices.



Dr. Elaine's Soil Foodweb School

soilfoodweb.com

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Founded by leading international soil microbiologist Dr. Elaine Ingham, Dr. Elaine's Soil Foodweb School provides expert analysis and advice to support soil health and restoration across the globe. The school analyses soil micro-organism activity and creates management plans tailored to farmers' specific soils to achieve a sustainable, productive and low-input farming system. It also offers training courses.

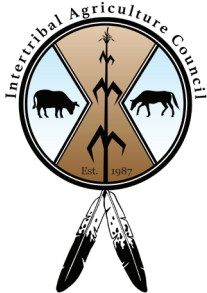


Holistic Management International

holisticmanagement.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Holistic Management International delivers a variety of programs and services designed to educate and support farmers, ranchers and land stewards in their efforts to enhance the land through Holistic Management®, a whole ranch/farm planning system based on regenerative agricultural practices. Since 1984, they have trained over 70,000 people and influenced 100 million acres.



Intertribal Agricultural Council

indianag.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Intertribal Agricultural Council (IAC) pursues and promotes the conservation, development and use of our agricultural resources for the betterment of American Indian people. IAC's Annual Conference is one of the largest gatherings of Indian producers and other tribal members focussed on agriculture. IAC's programmes include a technical assistance programme and Akiptan, a CDFI that will focus on investing in Native agriculture.

USA

**Kitchen Table Advisors**

kitchentableadvisors.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Kitchen Table Advisors is a nonprofit organisation dedicated to fuelling the economic viability of small regenerative and sustainable farms and ranches in Northern California through practical business advising and relationship building. It prioritises work with communities that have historically been excluded from resources and recognition within our food system – namely the BIPOC, womxn, low-income, immigrant and LGBTQ communities.

Mad Agriculture

madagriculture.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Mad Agriculture helps farmers and ranchers thrive ecologically and economically. It works on-the-ground with producers to create Regenerative Farm Plans. It is also financing a regenerative revolution with the Perennial Fund and EQIP, as well as securing market premiums for crops and carbon.

**Midwest Organic & Sustainable Education Service (MOSES)**

mosesorganic.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

MOSES promotes organic and sustainable agriculture by providing the education, resources and expertise farmers need to succeed. Its Organic Field Days programme educates farmers about specific organic practices unique to their farm and region. These on-farm events give farmers the chance to see firsthand how successful organic farmers manage their operation and opens their eyes to new ideas and innovations.

USA

**Noble Research Institute**

noble.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Noble Research Institute is a nonprofit agricultural research organisation with a focus on regenerative land stewardship in grazing animal production and producer profitability. It conducts fundamental, translational and applied research; offers no-cost consultation and education to farmers, ranchers and land managers; operates seven research and demonstration farms; and educates students of all ages about science and agriculture. It is launching the Ecosystem Services Market (ESM) programme to connect food and beverage companies with regenerative farmers and ranchers to reward measurable ecosystem benefits for carbon, water and biodiversity habitat.

**Northeast Organic Farming Association (NOFA)**

nofa.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Northeast Organic Farming Association (NOFA) is an umbrella organisation that supports chapters in seven Northeastern states to provide their members with locally adapted educational conferences, workshops, farm tours and printed materials. One area of focus for the organisation is educating its members about tillage reduction and other healthy soils practices in organic farming.

**Quivira Coalition**

quiviracoalition.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Quivira Coalition builds soil, biodiversity and resilience on western working landscapes. Its Land and Water Program helps ranchers develop plans and management strategies for restoring and building resilience on slope wetlands, grasslands and other working landscapes. Its New Agrarian Program helps to ensure that living and working knowledge of these practices, and the landscape itself, is stewarded into the future. Its Carbon Ranch Initiative is working to build the capacity of producers, land managers and technical service providers to implement land management practices focussed on mitigation of and adaptation to climate change. It also co-hosts the annual Regenerate Conference, which convenes ranchers, farmers, conservationists, land managers, scientists, medical professionals, nutritionists, students, educators and others to share knowledge, build community and create a culture of resilience and regeneration.

USA

**Ranching For Profit School**

ranchmanagement.com

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Run by Ranch Management Consultants, the Ranching for Profit School empowers ranchers to transform their ranches and farms into sustainable businesses. With over 7,000 alumni worldwide, the programme offers online courses and one-week, in-person courses for farmers and ranchers to learn tactics for increase profits while improving their management practices and the health and productivity of their land and animals. Alumni may participate in Executive Link (EL), an on-going coaching programme where they are placed into peer advisory boards to discuss business decisions.

**Rhizoterra Inc.**

rhizoterra.com

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Rhizoterra Inc. is an international company that creates information and knowledge pertaining to soil health, so we can all make informed decisions based on science. It works to demonstrate and promote the link between healthy soils and the production of nutrient-dense food through customised whole system planning for crop, livestock and/or integrated crop and livestock systems. It designs and implements research and discovery projects on a farm scale.

**Savanna Institute**

savannainstitute.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Savanna Institute is a Midwest U.S. institute that helps farmers incorporate agroforestry and perennial crops into their farm systems through its training and workshops.

**Soil Health Academy**

soilhealthacademy.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Through hands-on training from the world's leading experts, Soil Health Academy participants learn how to increase profitability, build resiliency into the land, decrease input costs and improve nutrient density of food and agricultural products.

USA



Southeastern African American Farmers' Organic Network (SAAFON)

saafon.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Southeastern African American Farmers' Organic Network (SAAFON) of Black farmers in the southeastern United States is committed to using ecologically sustainable practices to manage their land and the natural systems on it in order to grow food and raise livestock that are healthy for people and the planet. SAAFON allows its members to connect with like-minded farmers, build collective power in order to achieve our visions of land-based success and model alternative ways of living in the 21st century.



Terra Genesis
International

Terra Genesis International

terra-genesis.com

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Terra Genesis International is a regenerative design consultancy that includes engineers, permaculture design experts, agro-ecologists, foresters, carbon scientists and financial analysts. It helps large-scale agriculture and business clients redesign their supply chains and incorporate agricultural practices that regenerate soil, increase biodiversity and boost business.






The Wallace Center

pastureproject.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

The Wallace Center works with farmers, land managers, and those that support them to develop and scale innovative farming solutions that prioritise diversity and cooperation. Connecting regenerative farming and land management practices to equitable value chains helps the Wallace Center build lasting solutions for ecosystem health and climate change mitigation. Its Pasture Project works to advance regenerative grazing in the Upper Midwest as a scalable, market-driven solution for building healthy soils, viable farms, and resilient communities. It works with farmers, land managers, public agencies and farm member-based organisations to expand use of regenerative practices that yield win-win outcomes for farmers and rural communities.

USA	
	<p>Understanding Ag understandingag.com</p> <p>FARMER NETWORKS AND TECHNICAL ASSISTANCE</p> <p>Understanding Ag is a regenerative agricultural consulting company that helps its clients reduce input costs, generate actual profits and ensure family farming futures. Founded by pioneering regenerative farmers Ray Archuleta, Gabe Brown, Shane New and Allen Williams, the consultancy educates and mentors farmers, ranchers, landowners, businesses and communities through its consulting, Soil Health Academy and webinars.</p>
	<p>Western Sustainability Exchange westernsustainabilityexchange.org</p> <p>FARMER NETWORKS AND TECHNICAL ASSISTANCE</p> <p>Western Sustainability Exchange is a nonprofit organisation dedicated to advancing sustainable choices that enhance economic opportunities, which preserve open space, wildlife habitat, farm and ranchlands, and quality of life for future generations. It provides support to ranchers, including technical assistance, education on regenerative ranching practices, practical tools ranchers can use to assess the efficacy of various practices on individual operations, access to markets in the culinary and natural foods sectors and carbon market offset payment programs as an incentive for ranchers to adopt the practices over the long run.</p>

USA	
	<p>11th Hour Foundation 11thhourproject.org</p> <p>INVESTMENT</p> <p>A programme of the Schmidt Family Foundation, the 11th Hour Project supports efforts to build an agricultural system that improves soil, air, water, and animal and human health, recognising that this goal also reduces the impact of human activity on climate change. It is regionally focussed in California, the Midwest and the Southeast.</p>
	<p>1st Course Capital 1CC.VC</p> <p>INVESTMENT</p> <p>1st Course Capital is an early-stage venture capital firm investing in exceptional entrepreneurs who are transforming the US food system.</p>
	<p>Agrarian Trust agrariantrust.org</p> <p>INVESTMENT</p> <p>Agrarian Trust is a land trust that aims to support sustainable food production, ecological stewardship, community vitality and equitable land access for the next generation of farmers and ranchers. Its model centres around community-based farm and ranch land ownership. It is working to permanently remove land and agrarian assets from commodified markets and convey long-term lease tenure to farmers, ranchers and agrarians focussed on agricultural viability, regenerative stewardship and local agrarian community health.</p>
	<p>Agriculture Capital agriculturecapital.com</p> <p>INVESTMENT</p> <p>Agriculture Capital invests in farm land and food processing assets to build consumer-driven, vertically integrated, appropriately scaled and regenerative businesses that support the planet and the communities in which they operate.</p>

USA

**American Farmland Trust**

farmland.org

INVESTMENT

American Farmland Trust works to protect and conserve farmland in the United States through a range of financial tools. It aims to advance farming practices that prevent erosion and rebuild soil health through the use of contour farming, no-till, cover crops, crop rotations, intensive rotational grazing and precision agriculture.

**Armonia Capital**

armoniallc.com

INVESTMENT

Armonia Capital is a family office that has seeded and invested in a number of sustainable funds, companies, and projects with a focus on regenerative agriculture and holistic management across the food system.

**Biological Capital**

biologicalcapital.com

INVESTMENT

Bio-Logical Capital is an investment and consulting firm working with investors and landowners to design, build, conserve and manage diverse, regenerative, land-based projects in urban and rural environments.

**Black Farmer Fund**

blackfarmerfund.org

INVESTMENT

Black Farmer Fund is a new community investment fund that invests in Black food systems entrepreneurs in New York to create a racially just, regenerative, regional food system. For Black farmers, vendors, food distributors, caterers, restaurant owners, composters and other food business actors, it will provide non-extractive blended capital financing that suits their needs and current realities. It is also building financial education and investment literacy.

USA

**Blackdirt Farms**

blackdirtcapital.com

INVESTMENT

Blackdirt Farms partners with investors to purchase and manage undervalued and under-utilised farmland assets in the southeast United States. The company operates multiple farmland assets and one of the largest grass-fed beef farms in the eastern United States to produce grass-fed and pasture-based beef for the U.S. market.

**California FarmLink**

californiarfarmlink.org

INVESTMENT

California FarmLink helps the next generation of farmers and ranchers through business education, fair financing and access to land. It focusses on supporting beginning, limited-resource, immigrant and other underserved farmers across California through partnerships with farm-training programs, government agencies, impact investors and other nonprofits that help farmers access land and financing. It is certified as a Community Development Financial Institution (CDFI), one of the first agricultural CDFIs in the United States focussed on sustainable and organic agriculture, and economic and environmental resilience. The coronavirus pandemic has resulted in unprecedented demand for California FarmLink loans. In response, it is creating and deploying integrated capital strategies to support regenerative agriculture, grow local food systems and build wealth and equity in California's farm communities.

**Cienega Capital**

cienegacapital.com

INVESTMENT

Cienega Capital is an investment company utilising an integrated capital approach to systemic change in the areas of soil health, regenerative agriculture and local food systems.

**Dirt Capital Partners**

dirtpartners.com

INVESTMENT

Dirt Capital Partners invests in farmland in partnership with farmers throughout the northeast United States, promoting sustainable farmers' land access and security.

USA

**Farmland LP**

farmlandlp.com

INVESTMENT

Farmland LP is a sustainable farmland investment company that acquires conventional farmland, converts it to certified organic, and builds long-term value by implementing sustainable farming practices. It currently manages over 15,000 acres of farmland in northern California, Oregon and Washington.

**Food System 6**

foodsystem6.org

INVESTMENT

Food System 6 is a nonprofit business accelerator whose mission is to support impact-driven entrepreneurs as they transform how we grow, produce and distribute food. During the two-year program, entrepreneurs receive support across a range of areas including business model refinement, go-to-market strategy development and public speaking, along with introductions and feedback from potential investors, partners and funders. The accelerator prioritises entrepreneurs who are building a food system that focusses on health, sustainability and justice. Regenerative agriculture, biodiversity, circular economy and sustainable processing and manufacturing infrastructure are all key areas of focus.

**Funders for Regenerative Agriculture**

forinitiative.org

INVESTMENT

Funders for Regenerative Agriculture is a five-year initiative creating affiliations with multiple funder networks to inform, educate, organise, provide collaborative opportunities and recruit new members in support of regenerative agricultural systems.

**Gratitude Railroad**

gratituderailroad.com

INVESTMENT

Gratitude Railroad is a community of investors committed to helping solve environmental and social problems through the profitable deployment of capital into conscious businesses.

USA

**Iroquois Valley Farmland REIT**

iroquoisvalley.com

INVESTMENT

Iroquois Valley Farmland REIT is an organic farmland finance company that provides farmer-friendly leases and mortgages to the next generation of organic and regenerative farmers. It is one of the first private companies in North America to offer investors direct exposure to a diversified portfolio of certified organic farmland.

MEYER FAMILY ENTERPRISES**Meyer Family Enterprises**

mfenterprises.com

INVESTMENT

Meyer Family Enterprises is made up of a family office, grape cultivators and wine makers with a focus on regenerative agriculture. The family built its wealth through Silver Oak Cellars, which it invests in education and financial opportunity for underserved communities, renewable energy, regenerative food and agriculture, and sustainable real estate development.

**Native American Agriculture Fund (NAAF)**

nativeamericanagriculturefund.org

INVESTMENT



Native American Agriculture Fund (NAAF) provides grants to eligible organisations for business assistance, agricultural education, technical support and advocacy services to support Native farmers and ranchers. The charitable trust was created by the settlement of the landmark *Keepseagle v. Vilsack* class-action lawsuit. NAAF is the largest philanthropic organisation devoted solely to serving the Native American farming and ranching community.

#NOREGRETS Initiative**No Regrets Initiative**

noregretsinitiative.com

INVESTMENT

No Regrets Initiative works to leverage human, financial and ecological capital to restore soil health and fund the transition to regenerative agriculture. No Regrets is affiliated with the GlobeTrotter Foundation and Paicines Ranch in central California. Paicines Ranch Learning Center works to educate, inspire and connect people with new ideas and networks that advance soil health.

USA	
	<p>Perennial Fund theperennialfund.org</p> <p>INVESTMENT</p> <p>Perennial Fund offers a new type of loan to help farmers expand certified-organic acreage using regenerative practices. It offers farmers long term and low-cost financing, helps them secure new crop markets and provides integrated support.</p>
	<p>Propagate Ventures propagateventures.com</p> <p>INVESTMENT</p> <p>Propagate Ventures is an analytics, project development and financing platform that makes it easy for investors to fund low-risk agroforestry projects while helping farmers increase their profitability as they secure cost savings through ecosystem services such as carbon, water, nutrient and soil retention. Its agroforestry platform simplifies the operational know-how, workflow tools and investments farmers need to integrate fruit, nut and timber trees with agriculture, in row with existing operations. Propagate's streamlined deployment and underwriting process serves as a due-diligence funnel that quantifies risk and identifies investment potential.</p>
	<p>Regenerative Agriculture Foundation regenerativeagriculturefoundation.org</p> <p>INVESTMENT</p> <p>Regenerative Agriculture Foundation (RAF) aims to foster the economic, policy and knowledge conditions that support land stewardship, provide climate solutions, protect freshwater and oceans, advance racial equity and a just economy, support thriving rural communities, and sustain diverse human and ecological life.</p>
	<p>Renewal Funds renewalfunds.com</p> <p>INVESTMENT</p> <p>Renewal Funds is a mission-driven, venture capital fund investing in early growth stage companies that will advance the sustainability of food, water and climate. Its portfolio focusses on two core sectors: environmental technology innovation and sustainable consumer products.</p>

USA

**rePlant Capital**

replantcap.com

INVESTMENT

rePlant Capital is a financial services firm that is placing integrated capital into deep impact, privately held opportunities, from soil to shelf, to reverse climate change. Through its flagship 'Soil Fund', it is forming partnerships to finance the transition of American farmland to regenerative, organic agricultural practices.

**RSF Social Finance**

rsfsocialfinance.org

INVESTMENT

RSF Social Finance (RSF) is a financial services organisation that deploys integrated capital – including loans, loan guarantees, equity investments, grants and non-financial resources – to support enterprises working to solve complex social and environmental problems. Since 1984, RSF has made over \$500 million in loans, grants and investments supporting social enterprises in the areas of food and agriculture, education and the arts, and ecological stewardship. It supports regenerative agriculture project through its Food System and Regenerative Economies Funds.

**S2G Ventures**

s2gventures.com

INVESTMENT

S2G Ventures is a multi-stage venture fund investing in food and agriculture in the U.S. from seed to growth stage. The fund's mission is to catalyse innovation to meet consumer demands for healthy, sustainable and local food. Its core areas of interest are agriculture, ingredients, infrastructure and logistics, IT and hardware, food safety and technology, retail and restaurants, and consumer brands.

**SLM Partners**

slmpartners.com

INVESTMENT

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.

USA	
	<p>Soilworks soil.works</p> <p>INVESTMENT</p> <p>Soilworks is a Public Benefit Company on a mission to accelerate the regenerative food movement by helping launch scalable, repeatable businesses that fuel the regenerative economy. It invests, operates and incubates companies. In 2020, it acquired PastureMap and unveiled its own ‘regenerative beef’ company called Wholesome Meats that provides ground beef to restaurants and grocery retailers.</p>
	<p>Steward gosteward.com</p> <p>INVESTMENT</p> <p>Steward is a crowdfunding platform dedicated to helping regenerative farmers secure the capital they need to grow their enterprise with tailored loans. The platform allows individual investors to invest a minimum of \$100 in the Steward Farm Trust, which underwrites loans to farmers and issues investors a dividend-paying stock. The Steward Farm Trust is the principal investor, conducting initial due diligence and ongoing servicing and oversight. It also recently launched a micro-loans programme for regenerative farmers.</p>
	<p>Zero Foodprint zerofoodprint.org</p> <p>INVESTMENT</p> <p>The California-based initiative Zero Foodprint crowdfunds grants for farmers and ranchers to switch to renewable farming practices. Restaurants contribute 1% of their customers’ bills to the organisation’s Restore fund, which is then redistributed to farmers and ranchers for healthy soil projects. Local independent conservation experts help implement and verify carbon farming projects.</p>
	<p>California Climate and Agriculture Network (CalCAN) calclimateag.org</p> <p>POLICY</p> <p>California Climate and Agriculture Network (CalCAN) is a statewide coalition that advances policies to realise the powerful climate solutions offered by sustainable, regenerative and organic agriculture. It represents a statewide network of sustainable farmers and ranchers and allied organisations, agricultural professionals, scientists and advocates.</p>

USA



Carbon 180
carbon180.org

POLICY

Carbon 180 educates, engages and impacts policymakers, scientists and businesses to champion and enact ambitious carbon removal policies. It is actively exploring federal policies that foster soil carbon storage and is engaged in multi-stakeholder campaigns in several western states to help move policy frameworks and demonstration projects on soil carbon sequestration through agriculture.



Land Core
landcore.org

POLICY

Land Core is a nonprofit with a mission to advance soil health policies and programmes that create value for farmers, businesses and communities. It is developing the first scalable, outcomes-verified land lease platform, Standardized Outcomes Integrated Lease (SOIL), which is bringing together landowners, producers, third-party verifiers and funding partners to radically advance soil health adoption in the United States. The platform aims to reverse erosion, help quantify potential carbon capture and reliably generate outcomes data on the ecological and risk-mitigation impacts being made on every farm or ranch in the lease platform. Its risk modelling programme is building an actuarially sound, predictive model of the risk mitigating benefits of soil health as a tool to inform lenders and insurers.



National Family Farm Coalition
nffc.net

POLICY

Representing 30 farmer, rancher, fisher and rural groups in over 40 states, National Family Farm Coalition mobilises family farmers and ranchers to achieve fair prices, vibrant communities and healthy foods free of corporate domination. It is currently organising its constituent groups to push forward local-level policies for regenerative agriculture and build collaborative campaigns to advocate for changes to the 2023 farm bill that will support regenerative organic agriculture.

USA



National Health Soils Policy Network

calclimateag.org/national-networks

POLICY

Launched early in 2018, the National Healthy Soils Policy Network is a group of farmer-centred organisations that advocate for state and federal policies on behalf of sustainable, organic, beginning, minority and/or family farmers. Network members share models, lessons learned and strategies related to policies that incentivise agricultural practices with climate benefits, in particular, those that build healthy soils.



National Sustainable Ag Coalition (NSAC)

sustainableagriculture.net

POLICY

National Sustainable Agriculture Coalition (NSAC) is a leading alliance of grassroots organisations that advocates for federal policy reform to advance the sustainability of agriculture, food systems, natural resources and rural communities. It has prioritised a number of policies in support of sustainable land management, including the Environmental Quality Incentives Program (EQIP), the Conservation Stewardship Program (CSP) and the Grasslands Initiative.



National Young Farmers Coalition

youngfarmers.org

POLICY

National Young Farmers Coalition is a 501(c)(3) nonprofit dedicated to changing policy, building networks and providing business services to ensure all young farmers have the chance to succeed. It advocates for preserving independent family farms, sustainable farming practices, fair labour practices, diverse inclusivity in land access and farmer-to-farmer training.



Roots of Change (ROC)

rootsofchange.org

POLICY

Roots of Change (ROC) is a think-and-do tank working to ensure the emergence of a sustainable food system in California. As part of the Healthy Soils Network (HSN), ROC works with many allies to advocate for large increases in state funding for climate-smart agriculture programs, particularly the Healthy Soil Program. This globally innovative programme provides farmers with incentives for capturing soil carbon through many practices that improve soil health.

USA

**Union of Concerned Scientists**

ucsususa.org

POLICY

Union of Concerned Scientists (UCS) uses rigorous, independent science to solve our planet's most pressing problems. It combines technical analysis and effective advocacy to create innovative, practical solutions for a healthy, safe and sustainable future. UCS is promoting regenerative agriculture research and supporting federal agroecology and healthy soils policies.



WORLD
RESOURCES
INSTITUTE

World Resources Institute

wri.org

POLICY

World Resources Institute is a global research organisation focussed on seven areas: food, forests, water, energy, cities, climate and ocean. It develops analyses, partnerships and strategies to sustainably increase food production, such as restoring degraded lands back into productivity, increasing pastureland yields, and improving land and water management. It also advances methods to reduce food production's impact on the environment, such as climate-smart agriculture.

**Blue Nest Beef**

bluenestbeef.com

RETAIL

Blue Nest Beef is an e-commerce platform delivering amazingly flavourful, 100% grassfed beef from Audubon-certified bird-friendly land and regenerative 'Tree-Range' chicken.

CARMAN
RANCH



RC

Carman Ranch

carmanranch.com

VERTICALLY INTEGRATED BRANDS

Carman Ranch produces grass-fed beef and pasture-raised meats from regenerative family farms and ranches in the Pacific Northwest.

USA



Central Grazing Company

centralgrazingcompany.com

VERTICALLY INTEGRATED BRANDS

Central Grazing Company is a producer of sustainable food and fibre intended to create economic incentives for independent, regional and organic farmers. The company's platform is dedicated to creating zero waste products, keeps every step of production from farming to manufacturing transparent, and uses regenerative farming methods to balance carbon cycle and provide peaceful, calm and natural lives to flocks, enabling customers to get natural food and fibre products to create a positive impact on social and economic health. It is Certified Grassfed and Animal Welfare Approved by A Greener World. It sells directly to consumer lamb boxes and is 100% traceable leather goods.

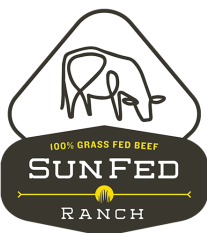


Joyce Farms

joyce-farms.com

VERTICALLY INTEGRATED BRANDS

Joyce Farms is a champion of the grass-fed beef industry and an expert in grazing methodology and regenerative agriculture. He developed many of the original grass-fed protocols and technologies now adopted by the grass-fed sector. He is the executive committee of The Grass Fed Exchange, chairman of the Board of Directors for the Association of Family Farms (AFF), lead consultant for the Farm Food Collaborative, and as a facilitator for the USDA Beginning Farmer & Rancher Development Program (BFRDP) Community of Practice.



Sunfed Ranch

sunfedranch.com

VERTICALLY INTEGRATED BRANDS

Sunfed Ranch is a California-based distributor of pastured beef committed to regenerative agriculture practices. Its American ranchers raise cattle on pastures as large as 45,000 acres.

USA

**National Co-Op Grocers**

nco.coop

RETAIL

National Co-Op Grocers (NCG) is a business services cooperative for retail food co-ops located throughout the United States. NCG helps unify food co-ops in order to optimise operational and marketing resources, strengthen purchasing power, and ultimately offer more value to natural food co-op owners and shoppers everywhere. Its 147 member and associate co-ops operate more than 200 storefronts in 38 states with combined annual sales of over \$2.1 billion. In 2016, it embarked on a new advocacy priority to address climate change within the context of food. It became a sponsor of The Carbon Underground, an organisation whose mission is to reverse climate change by inspiring a shift in how we grow food to regenerative agriculture. It also operates two programs, Co+efficient and Co+op Forest, that help co-ops reduce their contribution to climate change through calculating individual stores' GHGs and planting trees in the Peruvian forest.

THRIVE
— MARKET —

Thrive Market

thrivemarket.com

RETAIL

Thrive Market is an American e-commerce membership-based retailer offering natural and organic food products. It is the largest retailer of non-GMO foods in the United States and focusses on the mission of democratising access to healthy products for all Americans. In addition to offering thousands of the highest quality natural and organic branded products on the site, Thrive Market has also launched nearly 700 private label products across all categories with another 500-plus in development. Thrive Market is one of the first brands to launch regenerative organic products and is actively working with its suppliers and brands featured on its platform to shift toward regenerative agricultural practices.

Walmart 

Walmart

walmart.com

RETAIL

In 2017, Walmart, the world's largest retailer, launched Project Gigaton, an initiative to reduce one gigaton of greenhouse gas emissions from the company's supply chains by 2030. In 2020, it set a goal to become a regenerative company with a target zero emissions by 2040 and aims to protect, manage or restore at least 50 million acres of land and one million square miles of ocean by 2030.

USA



Whole Foods Market

wholefoodsmarket.com

RETAIL

Whole Foods Market is the world's leading natural and organic foods retailer. The company named regenerative agriculture as its number one food trend in 2020.



Carbon Farming Innovation Network by Green America

centerforsustainabilitysolutions.org

SUPPLY CHAIN

Carbon Farming Innovation Network is a cross sectoral collaboration of some of the world's largest food brands, producers, retailers, investors, NGOs and climate researchers. Its goal is to reduce emissions in the atmosphere from 408ppm to 280ppm through the adoption of agricultural innovations that sequester carbon. At the beginning of 2021, the Regenerative Supply Working Group and the Carbon Farming Innovation Network formally merged to become the Soil & Climate Alliance. The Alliance brings together representatives of the entire agriculture supply chain to work together over the long term for real impact.



Cargill

cargill.com

SUPPLY CHAIN

In 2020, Cargill announced its support of farmer-led efforts to adopt practices and systems foundational to regenerative agriculture practices across 10 million acres of North American farmland over the next 10 years. The initiative focusses primarily on row crop rotations that include corn, wheat, canola and soybeans and other staple crops. It has also started paying Iowa farmers for carbon sequestration and water quality efforts. The Soil and Water Outcomes Fund, a partnership between Cargill, Iowa Soybean Association and third-party verification company Quantified Ventures, compensates farmers for implementing agricultural management best practices on their farms. The resulting environmental improvements, including enhanced water quality and carbon sequestration, are independently monitored, verified and purchased by municipal, corporate and governmental entities who are seeking innovative ways to reduce their environmental impacts and costs.

USA

**Climate Collaborative**

climatecollaborative.com

SUPPLY CHAIN

Climate Collaborative is a collaborative of manufacturers, retailers, distributors, brokers, suppliers and other concerned businesses from the natural foods industry working to catalyse bold action, amplify the voice of business and promote sound policy to reverse climate change. Participating companies commit to sourcing ingredients from farms that use carbon farming practices and work with farms in their supply chain to decrease their carbon and greenhouse gas emissions. In partnership with the Sustainable Food Lab, it launched the Rooted Community, an action group on carbon farming that meets monthly and focusses on topics such as quantifying regenerative agriculture, supply chain resilience and collaborations on specific crops.

**Cream Co. Meats**

creamcomeats.com

SUPPLY CHAIN

Cream Co. Meats is an Oakland, California-based, all-natural, whole-animal butchery and distributor for sustainable and regenerative ranches. Today, it distributes, direct markets and directly invest in over 20 sustainable, regenerative and family-owned farms. All of their ranching partners undergo rigorous annual third-party auditing. In response to COVID-19, Cream Co. launched a new direct-to-consumer retail market in 2020.

**Fibershed**

fibershed.org

SUPPLY CHAIN

Fibershed is an organisation focussed on education, advocacy and research efforts that directly drive economic development for decentralised fibre and natural dye systems. It is developing a working model for 'soil-to-soil' agriculture and manufacturing processes that empowers small- and mid-scale farmers, designers and brands to engage in climate-beneficial agricultural practices that bring regionally and regeneratively farmed textiles directly to the marketplace. It works with producers to create carbon farm plans that capture the baseline conditions at each farm, assesses farm system-level carbon sequestration enhancement potential and assists farmers in implementing carbon farming practices, resulting in receiving a "Climate Beneficial" Trade label. The Carbon Farm Fund then provides seed capital to assist producers as they implement their carbon farm plan, incentivising producers to join their network and move towards verification and other certifications.

USA



Green America Center for Sustainability Solutions
centerforsustainabilitysolutions.org

SUPPLY CHAIN

Green America Center for Sustainability Solutions is a nonprofit organisation bringing together diverse stakeholders from the entire supply chain or system to solve complex sustainability challenges. Its Regional Regenerative Agriculture Network is focussed on getting 5 million more acres of small grains grown in rotation in the Upper Midwest by 2021. Its Regenerative Supply Working Group and the Carbon Farming Innovation Network bring together representatives of the entire agriculture supply chain to develop marketplace strategies to rapidly accelerate agricultural system solutions for soil, climate, water, farm economics and food security. It is also a design partner of the Soil Carbon Initiative.



KELLER CRAFTED

Keller Crafted Meats (KCM)
kellercrafted.com

SUPPLY CHAIN

Keller Crafted Meats (KCM) is a butchery and charcuterie focussed on creating and sustaining a farm-direct food chain for regional family farms. As part of its mission to honour animals, regenerate ecosystems, revitalise rural economies and nourish people, KCM develops and sustains supply chains with regenerative farmers and crafts products that solve for whole-animal utilisation.



Other Half Processing
otherhalfprocessing.com

SUPPLY CHAIN

Other Half Processing (OHP) supplies identity-preserved, high-quality byproducts from regenerative, organic and sustainably raised animals. A Specific Benefit Corporation (SBC), OHP supports the expansion of regenerative agricultural systems and value chains, doing business in a way that respects the animals and benefits the people who raise them. Currently focussed on hides/leather and ingredients for pet food and treat industries, OHP is able to identify and source multiple ethical and high-value byproducts that are only available from more sustainably raised livestock.

USA



Pipeline Foods

pipelinefoods.com

SUPPLY CHAIN

Pipeline Foods is the first U.S.-based supply chain solutions company focused exclusively on non-GMO, organic and regenerative food and feed. Its dedicated team brings transparent, sustainable supply chain solutions to connect the dots for its farming partners and end users of organic grains and ingredients.



Regenerative Agriculture Alliance

regenagalliance.org

SUPPLY CHAIN

With a focus on regenerative poultry, Regenerative Agriculture Alliance's mission is to assist in scaling-up regenerative agriculture supply chain. Its key programmes include producer pools planning and deployment assistance; supply chain infrastructure development targeting regenerative poultry, organic grains and feed, agroforestry systems, native-led regenerative bison, regenerative pork and grass-fed and finished beef and dairy; regenerative production protocols and certification systems integration; market development; capital markets access; land access and management systems; and Indigenous knowledge recovery, systematisation and dissemination.



Revel Meat Co.

revelmeatco.com

SUPPLY CHAIN

Revel Meat Co. is a USDA-processing facility providing humane slaughter and custom cut and wrap services to ranchers across the U.S. Pacific Northwest. It also purchases and sells livestock, wholesale and retail from a small handful of trusted ranchers to ensure fairness and quality across their supply. Revel's mission is to support small and midsize ranchers with a focus on regenerative and humane animal husbandry in building financial sustainability, in order to preserve local meat markets. Revel Meat Co. is revitalising humane animal processing as one of the few remaining USDA meat processors in the state of Oregon.

USA

**Sustainable Food Lab**

sustainablefoodlab.org

SUPPLY CHAIN

Sustainable Food Lab is a global network of organisations working together on market-based solutions to the key issues that are necessary for a healthy and sustainable food system. It builds peer-to-peer leadership networks, hosts global learning events, facilitates supply chain innovation projects and develops measurement tools to help its member organisations accelerate sustainability along their supply chains. Some of its current initiatives include Climate Smart Agriculture, Cool Farm Alliance, Soil Health Leadership Lab and Cool Farm Tool.

**The Common Market**

thecommonmarket.org

SUPPLY CHAIN

The Common Market is a nonprofit regional food distributor that seeks to connect communities with food from sustainable farms. It currently operates in the Mid-Atlantic, Georgia and Texas, but it is looking to expand to other U.S. regions. Since 2008, The Common Market has aggregated and distributed over \$22 million of local foods from over 200 sustainable family farms and producers. In each region, it develops infrastructure for the aggregation and distribution of regional products from many producers, as well as the building out of farm infrastructure to scale up sustainable and regenerative agriculture.

**Walden Local Meat**

waldenlocalmeat.com

SUPPLY CHAIN

Walden Local Meat is a meat share that markets and distributes sustainable meat from New England and New York ranchers. It has a regional, vertically integrated supply chain model and partners with small, sustainable ranchers in New England and New York to produce 100% grass-fed beef and pasture-raised chicken, pork and lamb. Each package is delivered with the name of the farmer and the town where the animal was raised.

USA

**World Wildlife Fund**

worldwildlife.org

SUPPLY CHAIN

World Wildlife Fund is an international, non-governmental organisation founded in 1961 that works in the field of wilderness preservation and the reduction of human impact on the environment. In 2020, it joined the Walmart Foundation, Cargill and McDonald's to Launch Million-Acre Grazing Initiative to invest \$6 million into preserving grasslands of the Northern Great Plains. WWF is also campaigning to achieve a Common Agricultural Policy that delivers on the objectives of the Farm to Fork Strategy and the overall European Green Deal, supporting the transition to agroecology.

B I O M E
M A K E R

Biome Makers

biomemakers.com

TECHNOLOGY

Biome Makers is a functional soil analytics platform based on soil microbiome working to improve crop health and recover soil health. Its technology can be applied to any crop and any soil. It has a presence in the United States, Europe and Latin America.

COMET
Farm

whole farm and ranch
carbon and greenhouse gas
accounting system.

COMET-Farm

comet-farm.com

TECHNOLOGY

COMET-Farm is an assessment tool produced by NRCS, USDA and Colorado State University that allows farmers and ranchers to estimate their entire operation's carbon footprint under different management scenarios. A particular benefit of COMET-Farm is that it leverages spatially specific data on soil type and climate patterns to provide spatially differentiated predictions. COMET-Farm provides us with field-specific estimates of, for example, annual changes in carbon stored in the soil and nitrous oxide emissions from nutrient applications.

USA

GrownBy by Farm Generations Cooperative

www.farmgenerations.coop

TECHNOLOGY

Farm Generations Cooperative is a new, national agricultural cooperative that brings farmer owners together to creatively solve business challenges. The co-op's first project, GrownBy, is a sales platform for direct market farmers. The farmer-owned software platform enables small, direct market farms to streamline administration and access shared-market support. It provides a technology tool that offers trust, fairness and a stable foundation for small, sustainable farmers to thrive in the future food economy.

**HowGood**

howgood.com

TECHNOLOGY




HowGood is an independent research company with the world's largest database on product sustainability. With more than 33,000 ingredients, chemicals and materials assessed, HowGood SaaS and impact data offerings help leading brands, retailers and investors improve their environmental and social impact, including soil health, biodiversity impact and animal welfare. Its Latis platform brings comprehensive impact insights into the product R&D process, allowing users to view the impact of any ingredient, source location and sustainability standard. Insights on metrics covering environmental impact, labour risk and animal welfare are available immediately throughout the process of formulating a product.

**OpenTEAM**

openteam.community

TECHNOLOGY

OpenTEAM, or Open Technology Ecosystem for Agricultural Management, is a farmer-driven, interoperable platform to provide farmers around the world with the best possible knowledge to improve soil health. It is a collaborative community of farmers, scientists and researchers, engineers, farm service providers, and food companies that are committed to improving soil health and advancing agriculture's ability to become a solution to climate change. It offers field-level carbon measurement, digital management records, remote sensing, predictive analytics and input, and economic management decision support in a connected platform that reduces the need for farmer data entry while improving access to a wide array of tools. OpenTEAM will be working with hubs and network farms to conduct field testing of the technologies.

USA	
	<p>PastureMap pasturemap.com</p> <p>TECHNOLOGY</p> <p>PastureMap is a grazing management platform that helps land managers map lands, manage rotational grazing and track herd performance.</p>
	<p>TeakOrigin teakorigin.com</p> <p>TECHNOLOGY</p> <p>TeakOrigin is a food data company that helps people make better food decisions. It makes it possible to see and understand what's happening inside of food by translating each food's unique chemical signature into a common language of quality. This provides the accuracy of a food testing lab at a speed and cost that meets needs across the food supply chain. Its goal is to create a global repository for dynamic nutrition and a standard way to measure nutritional value so that producers, resellers and consumers have a shared understanding of the food we grow/sell/eat and can make better, autonomously contextualized decisions. It expanded its nutritional data analysis to the United Kingdom by partnering with Streetbees, a global intelligence platform that reveals how people behave and why.</p>
	<p>Teralytic teralytic.com</p> <p>TECHNOLOGY</p> <p>Teralytic is a soil probe that generates real-time data collection and analysis of all soil types, anywhere in the field. Using 26 sensors to provide the most detailed soil quality data available, it reports on soil moisture, salinity and NPK at three different depths, as well as aeration, respiration, air temperature, light and humidity.</p>

USA

**Trace Genomics**

tracegenomics.com

TECHNOLOGY

Trace Genomics has developed the first analytics engine that learns as it maps the living soil. Founded in 2015 by two Stanford PhDs, Poornima Parameswaran and Diane Wu, Trace Genomics helps agricultural industry professionals, including agronomists and growers, to maximise the value of every acre. The company is building the largest, most actionable body of soil intelligence, making their customers experts on what's underground. Working collaboratively across the agriculture ecosystem, Trace Genomics has operations in Ames, Iowa, and Silicon Valley. Dan Vradenburg joined the company in 2019 as CEO, and brings four decades of farming knowledge and two decades of business expertise. The company has raised over \$35 million in funding.

**Belcampo**

belcampo.com

VERTICALLY INTEGRATED BRAND

Belcampo is a vertically integrated farm, butcher shop and restaurant revolutionising meat for the wellbeing of people, planet and animals. It farms and processes humanely raised livestock from start to finish, and sells its meat through grocery, e-commerce and branded Belcampo restaurants. Its farms practice regenerative agriculture and are climate positive and carbon negative.

**Cooks Venture**

cooksventure.com

VERTICALLY INTEGRATED BRAND

Cooks Venture is a venture-backed, vertically integrated agricultural company that breeds and raises a proprietary slow-growth, heirloom chicken. It works with scientists who measure soil carbon, nutrition and other biological factors on its 800-acre farm, and on the farms that grow feed for its livestock. It will soon be launching grass-fed and finished beef and lamb, as well as heritage pork and wild-caught seafood.

USA



Teton Waters Ranch

tetonwatersranch.com

VERTICALLY INTEGRATED BRAND

Teton Waters Ranch produces 100% grass-fed and grass-finished, certified humane, fully cooked beef products, including sausages, hot dogs, meatballs, and burger blends. Its original ranch in Idaho had been an industrial agriculture site for decades, specifically a potato farm. The combination of replanting native grasses and grazing those grasses with cattle resulted in soil redevelopment, erosion reduction, rainwater absorption and overall return of biodiversity.

UK



**Research Centre
Agroecology, Water
and Resilience**

Centre for Agroecology, Water and Resilience (CAWR), Coventry University

coventry.ac.uk/research/areas-of-research/agroecology-water-resilience

ACADEMIC AND RESEARCH

The Centre for Agroecology, Water and Resilience (CAWR) is a flagship research centre at Coventry University. CAWR, through its focus on food and water, develops and integrates new knowledge in social, agroecological, hydrological and environmental processes, as well as the pivotal role that communities play in developing resilience.



**Food, Farming
& Countryside
Commission**

Food, Farming and Countryside Commission

ffcc.co.uk

ACADEMIC AND RESEARCH

Started as an independent inquiry hosted by the Royal Society of the Arts (RSA), the non-profit works with governments, businesses and communities all around the United Kingdom to tackle the climate, nature, health and COVID-19 crises. In 2019, it published a report entitled 'Our Future in the Land', which outlines actions that can be taken in the next ten years to stop ecosystems collapse, recover and regenerate nature and restore people's health and wellbeing.



**ROTHAMSTED
RESEARCH**

Rothamsted Research

rothamsted.ac.uk

ACADEMIC AND RESEARCH

Rothamsted Research is a world-leading, non-profit research centre that focusses on the sustainable intensification of arable and grazing-livestock systems in the United Kingdom and worldwide. One of its key focus areas is developing and testing innovative farming systems that increases food production and resilience to future perturbations while reducing the environmental footprint of agriculture.



**Sustainable
Food Trust**

Sustainable Food Trust

sustainablefoodtrust.org

ACADEMIC AND RESEARCH

Sustainable Food Trust is a registered charity founded by Patrick Holden, a leading farmer in the regenerative and agroecological movements, to enable a transition to more sustainable food systems. Its work is focussed on three principle areas: influencing leaders, research and policy, and communications. It is currently focussed on a number of key themes, including harmonised farm sustainability, sustainable livestock and healthy, sustainable diets.

UK



The Game & Wildlife Conservation Trust (GWCT)

gwct.org.uk

ACADEMIC AND RESEARCH

The Game & Wildlife Conservation Trust is a leading UK charity conducting conservation science to enhance the British countryside for public benefit. GWCT's research is used to provide training and advice on how best to improve the biodiversity of the countryside.



Organic Research Centre

organicresearchcentre.com

ACADEMIC AND RESEARCH

Organic Research Centre is the UK's leading research centre for the development of organic, agroecological food production and land management solutions to key global issues including climate change, soil and biodiversity conservation and food security.



Planet Tracker

planet-tracker.org

ACADEMIC AND RESEARCH

Planet Tracker is a non-profit financial think tank aligning capital markets with planetary boundaries. It was created in 2018 to investigate the risk of market failure related to environmental limits, focussing on oceans, food and land use, and materials such as textiles and plastics.



Demeter International

demeter.net

CERTIFICATIONS AND STANDARDS

Demeter International is the brand for products from Biodynamic Agriculture. Only strictly controlled and contractually bound partners are permitted to use the brand. A comprehensive verification process insures strict compliance with the International Demeter Biodynamic Standards, as well as applicable organic regulations in the various countries, through every step, from agricultural production to processing and final product packaging. The holistic Demeter requirements exceed government-mandated regulations. Not only do they exclude the use of synthetic fertilisers and chemical plant protection agents in agricultural crop production, or artificial additives during processing, but also require very specific measures to strengthen the life processes in soil and foodstuffs. Demeter farmers and processors actively contribute towards the shaping of a future worth living for, creating healthy foods of distinctive tastes, truly 'Foods with Character'. Demeter – the Brand you can trust in.

UK

**LEAF**

leafuk.org

CERTIFICATIONS AND STANDARDS

LEAF (Linking Environment And Farming) is the leading certification organisation delivering more sustainable food and farming. The LEAF Mar-que is a lead-ing glob-al assur-ance sys-tem recog-nis-ing more sus-tain-ably farmed prod-ucts. The principles of Integrated Farm Management (IFM) underpin the requirements of LEAF Marque certification, as set out in the LEAF Marque Standard. IFM is a whole farm business approach that delivers more sustainable farming. Modern technology and traditional methods are used with the goal of delivering a prosperous farming that enriches the environment and engages local communities. British retailer Waitrose requires that its famers are LEAF Marque-certified.

**Pasture For Life**

pastureforlife.org

CERTIFICATIONS AND STANDARDS

Pasture for Life is a growing movement of British farmers, producing 100% pasture-fed beef, lamb and dairy sold under the 'Pasture for Life' certification mark. A Community Interest Company (CIC) since 2011, membership includes farmers, butchers, retailers and consumers – all with a passion to increase the supply and market for pastured meat.

**Red Tractor Assurance**

redtractor.org.uk

CERTIFICATIONS AND STANDARDS

Red Tractor Assurance is the United Kingdom's largest food standards scheme focussed on putting British food and drink on the shelves of some of the United Kingdom's largest retailers. It provides links between farming, processing, packing and distribution, with 46,000 British farmers and major supermarkets working to its standards. All of the major supermarkets use Red Tractor standards as part of their food sourcing and supplier specifications.

UK



Savory Institute

savory.global

CERTIFICATIONS AND STANDARDS

Savory Institute is a nonprofit based in Boulder, Colorado, with 48 regional learning hubs around the globe. Savory Institute Land to Market Program is the world's first verified regenerative sourcing solution for meat, dairy, wool and leather. The programme connects conscientious brands, retailers and consumers directly to supply derived from land that is verified to be regenerating. Founded in 2009, the Institute has trained nearly 12,000 farmers, ranchers and pastoralists, and influenced management of over 13 million hectares of grasslands through the adoption of Holistic Planned Grazing – a process that mimics ancestral grazing patterns of wild herbivores that co-evolved with healthy grassland ecosystems. The Savory Global Network comprises regionally based Savory Hubs (learning centres), Accredited Professionals (field educators), and Regenerating Members (recurring monthly donors) that, together, are their scale-up mechanism for increasing adoption. Savory Hubs are all locally owned and locally operated training centres that, through Accredited Professionals, provide HM training, resources and implementation support to local farmers and ranchers.



Soil Association

soilassociation.org

CERTIFICATIONS AND STANDARDS

Soil Association is the United Kingdom's leading organic food and farming charity and certification body. It campaigns for healthy, humane and sustainable food, farming and land use. Its Land Trust exists to protect the countryside by acquiring and managing farmland sustainably and to connect the public with the stewardship of the land.



Sustainable Wines of Great Britain

winegb.co.uk

CERTIFICATIONS AND STANDARDS

An organisation that aims to create a strong and vibrant community within the English and Welsh wine industry that actively promotes sustainability through information sharing and a certification scheme. The main principles of its certification include protecting vineyard soils, conserving the environment and promoting biodiversity, managing vineyards sustainably with minimal pesticide and fertiliser use, reducing water and non-renewable energy consumption, and minimising carbon footprint. Approximately 40% of the vineyard acreage in the United Kingdom, primarily the large vineyards, has signed up for the certification, according to the organisation.

UK


 AGRICOLOGY 
Agricology
agricology.co.uk
COMMUNICATIONS

Agricology is a communication platform for sustainable agriculture with a growing community of farmers and researchers sharing knowledge to work towards more resource efficient, resilient and profitable agricultural systems. The website covers material from fields and farms, a resource library with about 300 technical guides, articles, leaflets and more in several themes. The resource collection is based on a collaboration with over 20 of the United Kingdom's leading organisations working with sustainable agriculture.


Farmerama Radio
farmerama.co
COMMUNICATIONS

Farmerama Radio is an award-winning podcast sharing the voices behind regenerative farming. Each month, the show features farmers and growers rebuilding our food and ecosystems from the ground up.


Farms to Feed Us
farmstofeedus.org
COMMUNICATIONS





Farms to Feed Us is a nationwide database that connects small-scale, sustainable and regenerative food producers to their communities.


 Groundswell

Groundswell
groundswellag.com
COMMUNICATIONS

Groundswell is a conference that provides a forum for farmers and anyone interested in food production or the environment to learn about the theory and practical applications of Conservation Agriculture or regenerative systems, including no-till, cover crops and re-introducing livestock into the arable rotation, with a view to improving soil health.

UK	
	<p>Regenerative Agriculture Gathering cathystgermansevents.com</p> <p>COMMUNICATIONS</p> <p>Hosted on November 2, 2019, Regenerative Agriculture Gathering was the first gathering of pioneers, made up of farmers, growers, foresters, chefs, scientists, journalists, policymakers, organisers and academics. These individuals present a landscape of what a regenerative agriculture ecosystem could look like.</p>
	<p>Sustainable Soils Alliance sustainablesoils.org</p> <p>COMMUNICATIONS</p> <p>The Sustainable Soils Alliance is a partnership of farming organisations, businesses, NGOs, applied science and academia working together to restore our soils to health within one generation. It engages media and stakeholders, educates the general public and lobbies government.</p>
	<p>The Oxford Real Farming Conference (ORFC) orfc.org.uk</p> <p>COMMUNICATIONS</p> <p>Organised by Real Farming Trust, The Oxford Real Farming Conference has become the unofficial gathering of the agroecological farming movement in the United Kingdom, including organic and regenerative farming, bringing together practising farmers and growers with scientists and economists, activists and policymakers from across the globe in an annual two-day event every January. The conference offers a broad programme that delves deeply into farming practices and techniques as well addressing the bigger questions relating to our food and farming system.</p>
	<p>Ember embersnacks.com</p> <p>CPG</p> <p>Ember's biltong and charcuterie are made from pasture-raised cows and pigs reared on British and Irish soil.</p>

UK	
	<p>Farm Wilder farmwilder.org</p> <p>CPG</p> <p>Farm Wilder is a Community Interest Company, a non-profit organisation that works to make farming more sustainable and better for wildlife. It selects and labels produce from farms that do things differently. It helps its farmers adopt regenerative farming techniques that improve sustainability across the whole farm, restoring soil health, increasing soil carbon, reducing pollution and making the land more resilient against droughts, flooding and other impacts of climate change. For livestock farms, this means transitioning over three years to being 100% pasture-fed as part of the Pasture For Life certification scheme.</p>
	<p>Ham Street Wines hamstreetwines.co.uk</p> <p>CPG</p> <p>Established in 2019, the vineyard is in the process of converting to become certified organic, a process it will complete in 2022. It also follows regenerative and biodynamic practices.</p>
	<p>Lush Cosmetics lush.com</p> <p>CPG</p> <p>Lush is a bath, body, skin and haircare company devoted to creating fresh, ethically sourced, cruelty-free, vegetarian, handmade, low-waste and effective products. Lush works with its farms in Peru, Arizona, Uganda and Guatemala in order to adopt regenerative farming practices.</p>
	<p>Tillingham Wines tillingham.com</p> <p>CPG</p> <p>Tillingham Wines is a winery committed to farming in a diverse, polycultural way. It believes this is not only a highly sustainable approach, but, in conjunction with biodynamics, aims to restore soils to an optimum level of organic matter and microbial and wider ecological diversity.</p>

UK

**Cool Farm Alliance**

coolfarmtool.org

ECOSYSTEM SERVICES

Cool Farm Alliance is a not-for profit and member-owned organisation that hosts the Cool Farm Tool, a free online greenhouse gas, water and biodiversity calculator for farmers.

**FarmEd**

farm-ed.co.uk

FARMS

Cotswold Seeds acquired Honeydale Farm, a 107-acres farm in the Cotswolds, and is developing it as FarmED, an exciting new centre for farm and food education, with a mission to accelerate the transition towards regenerative farming and sustainable food systems by providing space and opportunity for inspirational education, innovative research, practitioner-led knowledge exchange events and personal development.



New Foundation Farms

New Foundation Farms

newfoundationfarms.com

FARMS

New Foundation Farms is a startup aimed at developing large-scale regenerative agriculture in Europe, starting in the United Kingdom. Its mission is to acquire farms and transform them into a vibrant network that is environmentally, socially and economically regenerative.

**3LM**

3lm.network

FARMER NETWORKS AND TECHNICAL ASSISTANCE

3LM, Land and Livestock Management for Life, is the local Savory Network hub in the United Kingdom and Ireland. It promotes, educates and facilitates the localised adoption of Holistic Land and Livestock Management across the British Isles.

UK

**Access To Land Network**

accesstoland.eu

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Access to Land Network brings together grassroots organisations from across Europe to share experiences and promote the significance of access to land for agroecological transition and generational renewal. Established in 2012, it functions as an informal network of about 15 organisations.

**Devon and Cornwall Soils Alliance, a project of Westcountry Rivers Trust**

wrt.org.uk

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Devon and Cornwall Soils Alliance (DCSA) aims to build capacity and capability in soils advice through training and mentoring projects across Devon and Cornwall. It builds on work done through the Channel Payments for Ecosystem Services (CPES) project to improve the articulation between advisors and regulators, and the Risk Aqua Soil (RAS) project, looking at monitoring soil water health as a way of assessing management outcomes.

**Farm Carbon Toolkit**

farmcarbontoolkit.org.uk

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Farm Carbon Toolkit is a farmer-led organisation with a goal of encouraging and supporting farmers and growers to reduce their farm greenhouse gas emissions, increase their farm energy resilience and, in doing so, also improve their farm business in the future. All of the meat it raises and sources are pasture-raised and heritage breeds.

**Farming & Wildlife Advisory Group (FWAG)**

fwag.org.uk

FARMER NETWORKS AND TECHNICAL ASSISTANCE

The national FWAG Association represents local Farming & Wildlife Advisory Groups (FWAGs) across the United Kingdom. These groups have helped British farmers for over five decades by providing trusted, independent environmental advice. It is also part of the governance group for the Regenagri Initiative.

UK

**Land Workers' Alliance**

landworkersalliance.org.uk

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Land Workers' Alliance is a union of farmers, growers, foresters and land-based workers with a mission to improve the livelihoods of its members and create a better food and land-use system for everyone. It works for a future where producers can work with dignity to earn a decent living and everyone can access local, healthy and affordable food, fuel and fibre – a food and land-use system based on agroecology and food sovereignty that furthers social and environmental justice.

**Nature Friendly Farming Network (NFFN)**

nffn.org.uk

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Nature Friendly Farming Network (NFFN) is a farmer-led movement in the United Kingdom seeking to unite farmers who are passionate about wildlife and sustainable farming by providing a collective way forward. The NFFN raises awareness of nature-friendly farming, shares insights and experience, and works together for better policies for food and farming. Its farmers come from a range of backgrounds big and small, organic and conventional.

**Real Farming Trust (RFT)**

campaignforrealfarming.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Real Farming Trust (RFT) is a charity concerned with food sovereignty and sustainable farming (in particular, agroecology). It runs a number of different projects and activities including Funding Enlightened Agriculture (FEA), the Oxford Real Farming Conference (ORFC), the Campaign for Real Farming (CRF), a mouthpiece for the agroecology movement and the College for Real Farming and Food Culture, which run courses and seminars promoting the ideas of Enlightened Agriculture.

**Regenagri**

regenagri.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Regenagri is a new regenerative agriculture initiative that supports farms and organisations to transition to holistic farming techniques that increase soil organic matter, encourage biodiversity and sequester CO₂. Its Digital Hub brings a community together and provides agribusiness actionable insights, including assessment tools and benchmarking data.

UK



SOUTH WEST
FARM CONSULTANTS

South West Farm Consultants

swfarmconsultants.com

FARMER NETWORKS AND TECHNICAL ASSISTANCE

South West Farm Consultants is an affiliation of forward thinking, independent agricultural consultants whose aim is to offer independent and impartial advice on all aspects of farm management in order to make a sustainable business in any agricultural system.



UK Biodynamic Association

biodynamic.org.uk

FARMER NETWORKS AND TECHNICAL ASSISTANCE

The Biodynamic Association (BDA) is a charitable organisation founded in 1929 to foster and promote biodynamic farming and gardening in the United Kingdom. It gives support and advice, publishes the journal Star & Furrow, and organises regular workshops and conferences.



Biodynamic Land Trust

biodynamiclandtrust.org.uk

INVESTMENT

Biodynamic Land Trust aims to secure farmland in trust for affordable access to biodynamic farmers, and for conservation, public access, and sustainable and community-connected farming and education.



Climate Bonds Initiative

climatebonds.net

INVESTMENT

Climate Bonds Initiative is an international organisation working solely to mobilise the \$100 trillion bond market for climate change solutions. It promotes investments in projects and assets necessary for a rapid transition to a low carbon and climate resilient economy. Its work is an open source and includes: market intelligence, developing a trusted standard and providing models and advice.

UK



Funding Enlightened Agriculture (FEA)

feanetwork.org

INVESTMENT

A project of the Real Farming Trust, FEA's mission is to support and finance British small- and medium-sized enterprises in the sustainable food and farming sector, and to explore and solve some of the issues around obtaining support and investment at an early stage. Its Loans for Enlightened Agriculture Programme (LEAP) offers farmers a mix of affordable loans and grants, side by side with a comprehensive mentoring programme and hands-on approach.



Mirova Natural Capital

mirova.com/en/invest/natural-capital

INVESTMENT

Mirova designs solutions for public and private investors willing to invest in nature-based solutions. Its strategies are aimed at financing projects that combine profit with purpose: ecosystem conservation, restoration and sustainable livelihoods for local communities. Mirova Natural Capital eventually aims to deploy \$100 million of blended finance into sustainable activities that protect, restore or otherwise improve biodiversity and community livelihoods in the nine Brazilian states located in the Amazon basin.



ReGen Future Capital

regenfuturecapital.com

INVESTMENT

ReGen Future Capital develops regenerative investment programmes that build low-carbon infrastructure and generate financial returns for investors. It reinvests half of its profits into restoring natural ecosystems at scale – regenerating soils, forests and oceans, reducing carbon emissions and creating sustainable livelihoods for local communities.



SLM Partners

slmpartners.com

INVESTMENT

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.

UK



National Food Strategy

National Food Strategy

nationalfoodstrategy.org

POLICY

National Food Strategy is an independent review commissioned by the government to set out a vision and a plan for a better food system. The first part of the review contains recommendations to support the country through the turbulence caused by the COVID-19 pandemic, and to prepare for the end of the EU exit transition period. The review will include findings from interviews with experts from underrepresented voices in the food system: low-paid workers in agriculture and food production, people with diet-related diseases, farmers living on the margins and many more.



Nourish Scotland

nourishscotland.org

POLICY

Nourish Scotland is a NGO that campaigns for the necessary changes to law, policy and practice to make the food system fairer and more sustainable. It works with a wide range of stakeholders including small producers, community groups, NGOs, local authorities and other public bodies to put sustainable, healthy, local food at the heart of Scotland's food system.



Sustain

sustainweb.org

POLICY

Sustain advocates for food and agriculture policies and practices that enhance the health and welfare of people and animals, improve the working and living environment, promote equity, and enrich society and culture.



Ethical Butcher

ethicalbutcher.co.uk

RETAIL

Ethical Butcher is an e-commerce website that delivers ethically raised, healthy and delicious meat across the United Kingdom via next day delivery. It sources only from farmers who meet its very high standards of ethics. The company works alongside these farmers and supports their training in ethical and holistic farming practices, helping them to re-wild the countryside of the United Kingdom, rebuilding ecosystems and locking carbon back into the earth, all of which helps combat climate change.

UK

**Eversfield**

eversfieldorganic.co.uk

RETAIL

Eversfield Organic began by offering Soil Association organic certified meat for delivery to people's homes, from its own grass-fed organic beef along with lamb, pork, poultry and wild game. It has since expanded its range to include sustainably sourced ingredients from local producers.

**Farmdrop**

farmdrop.com

RETAIL

Farmdrop is a sustainable supermarket, delivering fresh groceries from local and sustainable sources, seven days a week with free, next-day delivery. It has a cooperative of more than 450 ethical food producers across the United Kingdom, many of which are regenerative farms.

**Agrimetrics**

agrimetrics.co.uk

TECHNOLOGY

Agrimetrics offers the agrifood sector a unique data resource and data science capabilities to unlock new answers to sustainable food production. Its Data Marketplace enables organisations to safely share and monetise their data, whilst making it easier for data consumers to access the information they need.

**Vidacycle**

tech.vidacycle.com

TECHNOLOGY

Vidacycle is a farm that has created simple, mobile-based technologies that allow farmers to quickly and easily monitor their soils, fruits, vines and more on their farms. Vidacycle has four products, including Soilmentor, Sectormentor for Vines, Sectormentor for Fruits & Trees and Workmentor.

GERMANY

**AG Agroforst Deutschland**

agroforst.org

ACADEMIC AND RESEARCH

The working group, Agroforest Germany, is an association of active and interested scientists, consultants and practitioners who deal with the use and research of modern and traditional agroforestry systems and agroforestry in Germany. The focus of their work is the diverse uses of trees in the agricultural landscape.

**FiBL**

fibl.org/en

ACADEMIC AND RESEARCH

FiBL Germany is organised as a registered non-profit association and offers scientific expertise on current issues in organic agriculture and the food industry. It conducts interdisciplinary and practice-oriented research together with farmers and experts from science and industry. This way, knowledge from research is swiftly transferred into practice.

**Bioland**

bioland.de

CERTIFICATION

Bioland is the largest organic food association in Germany. About 8,100 farmers, gardeners, beekeepers and winegrowers produce, according to the Bioland standards. In addition, more than 1,200 processors such as bakeries, dairies, butchers, restaurants and traders are Bioland partners. Its guidelines are based on seven principles, including cultivating a circular economy, promoting soil fertility and biodiversity, animal welfare, no pesticides or genetically modified organisms, preserving natural resources, and ensuring people have a future worth living in.

**ECOVIN**

ecovin.de

CERTIFICATION

ECOVIN is an association of exclusively organic winegrowers in Germany. It has 250 member companies that cultivate around 2,600 hectares of vineyards according to ECOVIN guidelines. The ECOVIN certification covers the whole process of wine making. The association supports research into plant protection and grape variety breeding and offers professional training and support in organic viticulture.

GERMANY

**Demeter International**

demeter.net

CERTIFICATIONS AND STANDARDS

Demeter International is the brand for products from Biodynamic Agriculture. Only strictly controlled and contractually bound partners are permitted to use the brand. A comprehensive verification process insures strict compliance with the International Demeter Biodynamic Standards, as well as applicable organic regulations in the various countries, without a gap, through every step, from agricultural production to processing and final product packaging. The holistic Demeter requirements exceed government-mandated regulations. Not only do they exclude the use of synthetic fertilisers and chemical plant protection agents in agricultural crop production, or artificial additives during processing, but also require very specific measures to strengthen the life processes in soil and foodstuffs. Demeter farmers and processors actively contribute towards the shaping of a future worth living for, creating healthy foods of distinctive tastes, truly 'Foods with Character'. Demeter – the Brand you can trust in.

**International Foundation for Organic Agriculture (IFOAM)**

ifoam.bio

CERTIFICATIONS AND STANDARDS

IFOAM is the worldwide umbrella organisation for the organic agriculture movement, which represents close to 800 affiliates in 117 countries. Its mission is to lead the broad adoption of sustainable agriculture, value chains and consumption in line with the principles of organic agriculture. Amongst its wide range of activities, the federation maintains an organic farming standard and an organic accreditation and certification service. It also offers a regenerative agriculture training course.

**Naturland**

naturland.de/en

CERTIFICATIONS AND STANDARDS

Naturland is a German organic food association. At its core is a holistic approach, sustainable management, nature conservation and climate protection in actual practice, preserving and maintaining the soil, air and water, as well as consumer protection. Currently over 65,000 farmers in 58 countries manage an area of some 440,000 hectares according to the Naturland standards.

GERMANY



Savory Institute

savory.global

CERTIFICATIONS AND STANDARDS

Savory Institute is a nonprofit based in Boulder, Colorado, with 48 regional learning hubs around the globe. Savory Institute Land to Market Program is the world’s first verified regenerative sourcing solution for meat, dairy, wool and leather. The programme connects conscientious brands, retailers and consumers directly to supply derived from land that is verified to be regenerating. Founded in 2009, the Institute has trained nearly 12,000 farmers, ranchers and pastoralists, and influenced management of over 13 million hectares of grasslands through the adoption of Holistic Planned Grazing – a process that mimics ancestral grazing patterns of wild herbivores that co-evolved with healthy grassland ecosystems. The Savory Global Network comprises regionally based Savory Hubs (learning centres), Accredited Professionals (field educators), and Regenerating Members (recurring monthly donors) that, together, are their scale-up mechanism for increasing adoption. Savory Hubs are all locally owned and locally operated training centres that, through Accredited Professionals, provide HM training, resources and implementation support to local farmers and ranchers.



Farm & Food 4.0

farm-and-food.com

COMMUNICATIONS

Farm & Food 4.0 brings together influential stakeholders and decision-makers on the topic of digitization of agriculture and food industry since 2016. Due to its international and holistic focus the convention offers orientation and knowledge transfer in light of the rapid digital development and indicates common problem-solving strategies. Farm & Food 4.0 establishes a network for digital transformation in agriculture and nutrition in Europe.





Investing in Regenerative Agriculture and Food

investinginregenerativeagriculture.com

COMMUNICATIONS

In the Investing in Regenerative Agriculture and Food podcast, Koen van Seijen talks to pioneers in the regenerative food and agriculture space to learn more about how to put our money to work to regenerate soil, people, local communities and ecosystems while making an appropriate and fair return.

GERMANY	
	<p>CarboCert carbocert.de</p> <p>ECOSYSTEM SERVICES</p> <p>CarboCert offers companies the opportunity to offset their carbon emissions by buying CarbonCertificates from farmers in the network who are building humus on their land and actively drawing down carbon into their soil.</p>
	<p>Indigo Ag indigoag.com</p> <p>ECOSYSTEM SERVICES</p> <p>Indigo Ag is a carbon marketplace that supports farmers in their transition to more sustainable practices. Indigo has worked with the Climate Action Reserve and Verra – through their Verified Carbon Standard (VCS) programme – to help develop innovative methodologies for monitoring, quantifying, verifying, and reporting net on-farm greenhouse gas emissions reductions and removals. Corporate buyers for its carbon credits include Barclays, JPMorgan Chase, Shopify, IBM, Boston Consulting Group, Dogfish Head Craft Brewery, Givewith and New Belgium Brewing.</p>
	<p>Positerra positerra.org</p> <p>ECOSYSTEM SERVICES</p> <p>IPositerra’s team is made up of experts in regenerative agriculture who come together with sustainability managers and digital experts as well as award-winning environmental pioneers. They share a common goal: With a humus-building program, they’re driven to create something</p>

GERMANY


Gut & Bösel
gutundboesel.org
FARMS

Gut & Bösel has developed the concept of Beyond Farming, which is a holistic approach and understanding of working with nature and leveraging the potential of rural areas. It comprises the three pillars, Beyond Sustainability, Beyond Food and Beyond Farm Business. Beyond Sustainability believes in thriving to test and develop different forms of regenerative Agriculture in order to increase soil fertility, biodiversity and resilience of the landscape through multifunctional use. Holistic grazing, agroforestry and syntropic agriculture represent a few examples. Beyond Food believes that agriculture needs far more attention in order to fix our current food system: Agriculture is our best chance at solving many of the most pressing problems of our time. Beyond Farm Business believes that we, as society and as farmers, are only scraping at the surface of our potential when it comes to understanding nature and thus providing food, feed, fibre and energy as well as starting its own AgTech/ Food startups or leveraging land and infrastructure for others.

**Innovative Landwirtschaft Reber**
innovativelandwirtschaft.de
FARMS

Innovative Landwirtschaft Reber is a farm in Gailenkirchen near Schwäbisch Hall. Gailenkirchen is located on the eastern slope of the Waldenburg Mountains, the northernmost foothills of the Swabian Forest. Today they cultivate arable land for our biogas plant, some grassland with fruit trees (certified organic with direct marketing of apple juice), only a small pig farm and a biogas plant together with the Schwäbisch Hall public utility.


Luzernenhof
luzernenhof.de/de
FARMS

Luzernenhof is an organic CSA farm that farms according to regenerative and biodynamic principles. In 2018, it crowdfunded nearly 1 million euros to secure its farm and is raising money to fund future land purchases.

GERMANY



**Schlossgut
Alt Madlitz**

The Schlossgut Alt Madlitz

schlossgutaltmadlitz.com

FARMS

The Schlossgut Alt Madlitz is an ecological farm and forestry business outside of Berlin committed to sustainable and regenerative land use. It supports startups from the agriculture, forestry and research sectors through practical support and the provision of test areas.



Access to Land Network

accesstoland.eu

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Access to Land Network brings together grassroots organisations from across Europe to share experiences and promote the significance of access to land for agroecological transition and generational renewal. Established in 2012, it functions as an informal network of about 15 organisations.



**CLIMATE
FARMERS**

Climate Farmers

climatefarmers.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Climate Farmers is building the infrastructure and community to scale regenerative agriculture. It identifies regenerative farmers across Europe and supports them in their important work to rebuild natural ecosystems and reverse climate change. It has a membership programme for farmers and its website features a database of regenerative farmers throughout Europe.



Deutscher Fachverband für Agroforstwirtschaft (DeFAF)

agroforst-info.de

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Deutscher Fachverband für Agroforstwirtschaft (DeFAF), or the German Association for Agroforestry, is committed to ensuring that agroforestry in Germany is increasingly promoted and used more in agriculture. It is active in public relations, management and economics, planning and consulting, education and training, research and development, technology and services, law and administration, and international cooperation.

GERMANY



German Hub for Land Regeneration – Savory Institute

savory.global/hubs/german-hub

FARMER NETWORKS AND TECHNICAL ASSISTANCE

The Savory Global Network German Hub promotes the regeneration of the natural and cultural environments in the German-speaking region of Europe by connecting land managers, producers and consumers. Based on the farm Gut Haidehof just outside Hamburg in northern Germany, the hub offers information, inspiration and facilitation of change towards Holistic Management to farmers in the region. The farm demonstrates a sound, innovative business through the grazing of cows, pastured poultry and no-dig vegetable gardening. The farm team takes pride in humane, low-stress animal husbandry, respectful social relationships and ethical, nutritious food production.



Grüne Brücke

gruenebruecke.de

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Dietmar Näser, founder of the company Grüne Brücke, is considered a pioneer in regenerative agriculture. His work focusses on natural processes and soil fertility beyond conventional fertilisation and tillage. Grüne Brücke offers soil courses for agricultural and fruit growing companies looking to learn about regenerative agriculture.



Holistic Management International

holisticmanagement.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Holistic Management International delivers a variety of programs and services designed to educate and support farmers, ranchers and land stewards in their efforts to enhance the land through Holistic Management®, a whole ranch/farm planning system based on regenerative agricultural practices. Since 1984, they have trained over 70,000 people and influenced 100 million acres.

GERMANY

**IG Gesunder Boden eVIG**

ig-gesunder-boden.de/UeberUns

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Gesunder Boden eV promotes mutual networking of its members and sees itself as a platform to collect old and new knowledge and to make this information available to interested parties. This is achieved through many campaigns, e.g. honouring ambassadors for healthy soil; projects, e.g. participation in research projects, soil discovery paths; and events, e.g. soil days, specialist lectures, field days, compost days. The goal of IG Gesunder Boden eV is the construction of healthy soils as the basis for healthy plants, animals and people. A national network of practitioners exchanges knowledge with the aim of building healthy, lively and humus-rich soils to produce high-quality plants and food. In addition to avoiding nutrient loss, promoting soil biology and implementing the correct soil nutrient ratios, the focus is on building up permanent humus.

**Kulturland Genossenschaft**

kulturland.de/de/so-funktioniert-die-kulturland-eg

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Kulturland Cooperative secures land for organic farms and enables the strengthening of agricultural culture and human and ecological diversity. It organises 'commons' – joint ownership of land – for rural organic farming. It acquires arable land, meadows, pastures, hedges and biotopes and makes the land available to regionally integrated farms that market organic food on site, offer tours, practise nature conservation and landscape maintenance, and provide social care or work with educational classes.



PULS DER ERDE

Puls der Erde

pulsdererde.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

Puls der Erde is building a farmstead at Lenzwald with up to 30 hectares of land and livestock and a comprehensive seminar centre with a research and training academy for regenerative and solidary agriculture. A small and engaged resident core community is connected with a growing community, whose work, interconnectedness and innovation power contributes to a societal impact. This way, a crucial contribution is made to the autonomy of the region, as a starting point for other regions and as an inspiration centre for a growing awareness of deep sustainability on all levels.

GERMANY

**Soil Alliance**

soilalliance.org

FARMER NETWORKS AND TECHNICAL ASSISTANCE

The Soil Alliance – Association for Regenerative Agriculture in Germany (Verein für regenerative Landwirtschaft eV) – aims at communicating the profound importance of regenerative methods in agriculture to a broad public. To this end, they cooperate with associations and organisations that want to make a difference with us, such as Naturland or the Bioland Foundation. By bringing protagonists, trendsetters, innovators and pioneers of regenerative agriculture together with opinion leaders and multipliers from agriculture and forestry, media, politics and culture, economy and finance from around the world, renewable agriculture is potentially one of the most effective levers to reduce greenhouse gases in the atmosphere and oceans and thus combat climate change. Our seminars and workshops are not only aimed at farmers from organic and conventional farms, but also at students.

**Stiftung Ökologie & Landbau (SÖL); Kuhproklima**

soel.de

FARMER NETWORKS AND TECHNICAL ASSISTANCE

For more than 40 years, the Foundation Ecology & Agriculture (SÖL) has contributed to the promotion and progress of organic agriculture in Germany. Founded in 1962 by Karl Werner Kieffer and Dagi Kieffer, SÖL is a non-profit, independent institution that promotes and encourages research into sustainable agricultural management that promotes good soil, clean water and fresh air and supports farmers. It offers training and resources to farmers who are looking to farm organically and regeneratively.

**The Forest Farmers**

theforestfarmers.eu/en

FARMER NETWORKS AND TECHNICAL ASSISTANCE

The Forest Farmers offer regenerative agroforestry design, project development and implementation.

GERMANY

**BioBoden Genossenschaft**

bioboden.de

INVESTMENT

BioBoden acquires land and farms that are for sale and leases them to organic farmers on a long-term basis at an affordable price. It also operates farms and gives (young) farmers an opportunity to work as a farmer on a long-term basis.

**SLM Partners**

slmpartners.com

INVESTMENT

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.

A B O U T

ALPHA FOOD LABS

Beef+Lamb New Zealand and New Zealand Winegrowers have commissioned Alpha Food Labs to create and deploy a study to understand the current state and future market potential of Regenerative Agriculture in food and wine within the United States, Germany and the United Kingdom.

ALPHA FOOD LABS IS A US-BASED FOOD INNOVATION AGENCY THAT BUILDS AND LAUNCHES NEW FOOD & BEVERAGE PRODUCTS AND INNOVATION STRATEGIES.

We believe in creating food that's delicious, healthful, and sustainable. Our mission is to make the future of food one that's better for people and planet by making it easy for eaters to make better food choices.

Alpha Food Labs is a company founded by the founders of Food+Tech Connect, The Future Market, and the co-founder of S2G Ventures.

INNOVATION STRATEGY

WE CREATE BLUEPRINTS FOR GROWTH THROUGH INNOVATION

We discover meaningful unmet needs and market opportunities through consumer insights and market research. Our strategies help you set ambitious goals for tomorrow and reach them by working smarter, faster, and more creatively today.

FOOD & BEVERAGE PRODUCT DESIGN

WE DESIGN NEW FOOD & BEVERAGE PRODUCTS

We come up with awesome product ideas and turn them into delicious realities by developing irresistible recipes, memorable brand designs, and smart go-to-market plans. Our design process gives you a scalable, market-ready product that eaters will fall in love with.

PRODUCT INCUBATION

WE BUILD THE FUTURE OF FOOD

We develop and launch our own food products dedicated to democratizing healthy and sustainable food. We drive food systems change by bringing products into the world that make helping people and planet irresistibly delicious.

ALPHAFOODLABS.COM