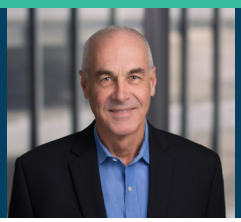
VERIS Wealth Partners

The Convergence of Regenerative Agriculture, Forestry and Climate Solutions



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A quiet, interconnected revolution is remaking Agriculture, Forestry and Climate Change solutions.

These ideas are among the most transformative of the past 50 years. They are prompting a re-evaluation of long-standing business practices in agriculture and forestry, with the goal of more effective allocation of resources and protection of the environment. At this polarizing and confused moment in our nation, and with a widening gulf between rural and urban America, these ideas are a source of hope for the future, while advancing the long-term goals of the Environmental, Social, and Governance (ESG) investing and business movements.

In this Research Brief, we examine each idea and how their intersection will ultimately benefit individuals, communities and businesses. To appreciate their enormous impact, we will review the state of regenerative agriculture and climate solutions, emerging trends and the economic and investment opportunities. We also highlight individuals, farm and business leaders who are putting these ideas into action.

To place this discussion in proper context, it's important to define terms. Regenerative conservation land practices for agriculture and forestry center on rebuilding soil and mitigating climate change. According to Wikipedia, regenerative practices typically include topsoil regeneration, increasing and expanding biodiversity, improving the water cycle, enhancing ecosystem services, supporting bio(carbon)sequestration, increasing resilience to climate change, and strengthening the health and vitality of farm soil.

Now let us begin.

POWERFUL IDEAS: 4 KEY THEMES TO ADDRESS CLIMATE CHANGE

No. 1: Rebuilding Soil. Organic matter is the foundation for healthy and productive soils. However, of the natural 5% to 6% organic matter in soil, only 3% remains in most modern cultivated soils, according to National Resources Conservation Services of USDA (NRCS). Building organic matter in soil increases water fil-

tration, crop yields, and the resiliency of land during extreme weather, while decreasing runoff – all of which improve soil structure.

No. 2: Farmer Economic Success. Regenerative Agriculture and Forestry are intended to improve the financial well-being of farmers by growing their income and maintaining the health and vitality of rural communities. This is not a current practice or universal goal in American agriculture. The emphasis on farmer economic success flips the conversation and allows everyone to win – both rural and urban communities.

No. 3: Emerging Common Ground. Many varied interests are finding common ground in these new farming and forestry practices. They are bringing together Republicans and Democrats. Family vegetable and fruit farms. Cattle ranchers and grain farmers. Proponents include Republican Agriculture Secretary Sunny Perdue, Democratic Senator Cory Booker of New Jersey, as well as General Mills and the Rodale Institute.

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No. 4: Carbon and Agriculture. Soil, plants and animals drive the carbon cycle. In the process, they store carbon in the soil. The concentration of atmospheric carbon, now at 417 PPM, is already likely exceeding limits the Earth can handle. We need transformative strategies, such as carbon sequestration. This is the process by which atmospheric carbon dioxide is absorbed by trees, grasses, lichens and other plants through photosynthesis. Carbon is stored in the bodies of plants – trunks, branches, leaves, roots – and in soils. We believe agriculture is the one "business sector" that can transform us from a net emitter of carbon to a net sequesterer of carbon. There is no other solution today that has this tremendous potential. Forestry land management, product manufacturing and product consumption are critical to the equation.

In many ways, the regenerative revolution was launched more than 50 years ago by the farmers and consumers supporting the Organic Farming and Food movement. Today, we all know this as "USDA Organic" in our grocery stores. Regenerative Agriculture refocuses attention on soil health as a foundation of food and consumer health. There are about 900 million acres of farmland in the U.S. Of that, about 100 million is on the path to regenerative or conservation.

FORESTRY, AGRICULTURE AND CLIMATE CHANGE ARE CLOSELY LINKED

Agriculture provides livelihoods for the majority of low-income communities around the globe and much of rural America. However, the expansion of agriculture is a core driver of deforestation, and thus contributes indirectly to greenhouse gas emissions. Just as deforestation is part of the challenge globally, reforestation and stewarding healthy forests is part of the solution. Forests capture and store carbon immediately, rapidly, in great quantity, and for long periods of time. Currently, U.S. forests and forest products recapture and reduce annual U.S. greenhouse gas emissions by approximately 13% (Inventory of US Greenhouse Gas Emissions and Sinks, EPA, 2015).

Because trees and forests have great capacity to sequester carbon from the air, forests became the first "natural system" market for selling and trading carbon credits. While there are many carbon trading approaches, the California carbon market is perhaps best established (Private Capital for Working Lands, The Conservation Finance Network). In the first part of 2020, Amazon stepped up with the purchase of $5 million in carbon credits for Vermont's forests through the Cold Hollow Carbon Project. At the same time, Amazon invested a similar amount into carbon credits in the mountains of Pennsylvania. Amazon's purchases were developed under the American Carbon Registry (ACR), a global voluntary market system, using the Improved Forest Management (IFM) standard.

Why are all these diverse players sharing a similar (not same) regenerative vision?

Weather and climate matters are getting more extreme. Soil health is so depleted that over the next 30 to 70 years, the world's soil may no longer support vibrant agriculture. There is an urgent need for global sequestration of carbon. Agriculture is 10% of U.S greenhouse gas emissions (EPA GHG Emissions). Finally, farmers who earn too little money can neither thrive nor steward our common future.

The convergence involving Regenerative Agriculture, Forestry and Climate Change solutions create a critical linkage. Healthy soil enables farmers and their communities to grow crops, thus empowering the remediation of climate change. This linkage can also generate a significant percentage of U.S. renewable energy needs. In the process, rural America feeds urban America. Rural America ameliorates climate change and provides city dwellers with solar energy.

THE CHALLENGE AHEAD

Around the globe, we are losing 1% of our soil per year, according to D.R. Montgomery, Dirt: The Erosion of Civilizations. Even if farmers continue to increase their resource efficiency, adapt to changing climates

by planting different crops, share best practices and rapidly innovate, if soil depletion and erosion is not stopped, there is little hope of feeding our future population.

A few numbers indicate the magnitude of the challenge:

- World population is projected to reach 9.8 billion in 2050, and 11.2 billion in 2100.
- Land degradation has reduced the productivity of 23% of the global land surface, and urban areas have more than doubled since 1992 (2019 UN Report).
- Agriculture and forestry activities currently generate 24% of greenhouse gas emissions worldwide, according to Project Drawdown. The U.S. Environmental Protection Agency estimates that agriculture and forestry together accounted for 10.5% of U.S. greenhouse gas emissions in 2018. In other words, for U.S. agriculture to be an effective carbon sequester, it first has to bring its carbon emissions back to zero.

We believe that COVID-19 is not the last serious pandemic. The greater resilience of our soils, the more likely humans can recover well. Soil health leads to human health.

The Importance of Soil Health

Practices that build soil health can also bring economic benefits to farmers.

Food and agriculture leaders have adopted "soil health" as an umbrella term that encompasses both soil carbon sequestration and the myriad other benefits for farmers. Many of the agricultural practices that advance soil health can also achieve on-farm cost savings by reducing expensive inputs. Preliminary research suggests that these practices can improve yields and resiliency.

Soil organic matter stores approximately three times more carbon than atmosphere or land vegetation. Conventional agriculture has eroded much of our topsoil, while emitting carbon into the atmosphere. Soil carbon is an essential soil nutrient. It enhances water filtration and increases ecosystem resilience.

NEW INVESTMENT SUPPORTING REGENERATIVE AGRICULTURE

The following section of this Brief outlines examples and pilots, as well as fully operational financial and investment approaches to support Regenerative Agriculture, Forestry and Climate Change solutions. More are emerging.

Carbon Credits for Sequestering Carbon

To reduce their carbon footprint, a growing number of companies large and small are purchasing carbon credits, according to CREO. Carbon credit buyers range from fossil-fuel energy companies repeatedly in environmental litigation to local and global companies like Ben and Jerry's and Danone interested in helping farmers sequester carbon in their soil. This strategy can include local companies focused on strengthening their communities and utility companies "greening themselves." Many national corporations are investing in carbon like Amazon's recent $10 million purchase of carbon in family-owned forests in Pennsylvania and Vermont. General Motors annually purchases $300 million in credits from Tesla.

Ecosystem and Farm Services

Indigo Ag, based in Boston, is an example of an emerging Regenerative Ag service company funded recently

with several hundred million dollars of investments. It is an integrated consultancy for farmers nationally. Indigo Ag is seeking new opportunities for farmers pursuing soil health, carbon, crop practices and crop marketing. Similar firms are located in Colorado (Comet Farm) and Kansas.

Anheuser Busch partnered with Indigo Ag in 2019 on an initial test to improve soil health and grow higher quality rice. The beverage maker set a goal of a 10% improvement in water, nitrogen, and greenhouse gas impacts for growing 2.2 million bushels of rice for Busch beer. The test significantly exceeded goals. Soils and climate won, while farmers meaningfully increased their income.

Danone partnered with rePlant Capital, an impact investing firm focused on climate change solutions. Through the partnership, rePlant has dedicated 40% of its $50 million impact investing fund to loans that support conservation farming practices.

Investment Assets into Sustainable and Regenerative Food and Agriculture

The scope and scale of impact investing in Sustainable Food and Agriculture is significant at this early stage of the growth of the sector.

- According to the Croatan Institute in their 2019 study, Investment in the Field, there is approximately $370 billion invested across all asset classes of Sustainable and Regenerative Agriculture, with much more room for additional investment. Impact/ESG investors are found in investment classes, ranging from CDFIs like RSF Social Finance to private equity like Dirt Capital.
- Invesco Asset Management sees a path for creating a "green-type bond" for soil health and carbon sequestration. They suggest corporate investors, State Treasurers and foundations underwrite the benefits, which accrue to farms and society as a whole.

Jacob Israelow, Managing Partner, Dirt Capital

Jacob Israelow began considering investing in regenerative farming and farmland during five years as a Vice President at Goldman Sachs in Asia. He was focused on real estate and structured finance, critical skills for his agriculture land future. He returned to the Hudson Valley and founded Dirt Capital Partners in 2013 to channel private investment for farmland access, conservation and long-term land security for sustainable farmers. "We try to fill gaps in the conventional agricultural credit and lending system," says Israelow. Unlike traditional lenders, who care less about a farmer's choice of pesticide and more about the size of their collateral, Israelow said Dirt Capital only works with farmers who are committed to sustainable, ecological land management. These farmers also need a

marketable game plan with high-value foods that consumers are willing to pay for.

Crop Insurance for Sustainability and Climate Risk Mitigation

Most farmers purchase crop insurance primarily to protect against climate change – wind, flooding, and temperature. Land Core is collaboratively building a predictive model of the risk reduction associated with positive soil health that is sound from an actuarial standpoint. Although there is a general understanding that healthy soils reduce risk in agriculture (lowering the likelihood of floods and increasing resilience to drought, etc.), institutions such as banks and insurers do not incorporate these benefits into their risk assessments. Incorporating these factors into insurance underwriting could be a game-changer by paying regenerative farmers to build soil and minimize more climate risky practices and effectively lowering costs.

Solar and Renewables Integrate on the Farm

A very promising effort is underway to integrate solar into agriculture. The nation's leading renewable energy lab, National Renewable Energy Lab (NREL), USDA and dozens of universities, are collaborating to innovate and bring commercial grade solar to the farm. This includes ideas such as Agrovoltaics: integrating solar, soil, bees and cattle. Solar achieves two critical goals. First, it reduces farm energy costs and/or earns fees for farmers via sale of electricity. Second, it reduces atmospheric carbon by replacing fossil fuels. For example, White Oak Regenerative farm in Georgia is one of the best-known conservation farms in the U.S. It has 2,400 acres, with hundreds of beef cattle. It is embracing solar in a significant way in partnership with Tennessee-based Silicon Ranch. The farm's latest project will span across the acreage of White Oak Pastures, a 152-year-old family farm in Georgia that conceives Regenerative Agriculture as part of a "radically traditional" approach to farming.

> Providing new income sources and capital to farmers on fair and equitable terms is one of the most impactful ways that Americans, largely urban Americans, can support the transformation of our food system.

POTENTIAL FINANCIAL BENEFITS FOR FARMERS

Major transformation of an economic system takes tremendous capital, innovation and commitment. We briefly pointed out a number of potential new sources of on-farm income that are largely driven by the climate, soil and environmental factors. Combined, they may be a truly compelling incentive for positive change, while creating a new era of economic sustainability for farmers.

The following are just some of the potential benefits:

- Carbon Sequestration, agricultural and forest, and other ecosystem Benefits
- Climate risk-adjusted crop insurance
- Renewable Energy production for sale into grid and or farm use
- Potential reduction in farm inputs and lowered production costs

- Potential Regenerative Marketing value to commodity partner or consumer-direct

If all of these and other components were successfully integrated, a farmer could see $50-$100/acre in new revenues. For a Vermont farmer with 150 acres, that might amount to $10,000 a year. This could total 10% to 20% of current net farm income. For a grain and cattle farm in the Midwest, this "regenerative return" is likely to be significantly larger.

All of the above are potential sources of new income or financing. They also share a core goal: To incentivize and de-risk the transition from conventional land management practices (short-term high yields) to regenerative land management practices (long-term healthy production).

Ben Burkett, Fifth Generation Farmer and Leader, Mississippi

Most farmers don't have the financial capacity to try something new and fail. In other parts of the economy, successful businesses can experiment and fail, learn from their mistakes, and then pivot to achieve success. In farming, failure is not an option, as a result, farmers are naturally more conservative. There tends to be less appetite for innovation and risk-taking that lead to meaningful breakthroughs.

Providing new income sources and capital to farmers on fair and equitable terms is one of the most impactful ways that Americans, largely urban Americans, can support the transformation of our food system. These new sources of income hopefully can provide a more secure living for the farm families and rural communities of America.

LEADERS WHO ARE CREATING THE FUTURE

Remarkable and diverse players are building the field. They include the following:

Ben Burkett, Fifth Generation Black Farmer and Leader, Mississippi

Ben Burkett's family has been farming the same land in Petal, Mississippi since 1889, when his maternal grandfather acquired a 164-acre homestead. His daughter Darnella Burkett Winston is the fifth generation to work the land. Burkett grows exceptional sweet potatoes and watermelon. He's been an activist for more than 30 years, fighting to maintain the livelihoods of black farmers and their land. Once quite significant, he has seen the majority of acreage owned by black farmers foreclosed on and sold over the last century. He speaks, testifies, and organizes for the rights of independent family farmers in his community, around the U.S. and internationally. He is President of the National Family Farm Coalition; State Coordinator of the Mississippi Association of Cooperatives, and a member of the international peasant network, La Via Campesina.

Burkett grows 20 different vegetables and soybeans. He has almost 100 acres of old growth pine trees for lumber and telephone poles. He markets through Indian Springs Farmers Cooperative Association. He sells to food service companies, supermarkets, Whole Foods restaurants, and co-ops in New Orleans, Minneapolis and New York.

Del Ficke, Ficke Cattle Company, Lincoln Nebraska.

A fifth-generation producer, Ficke works 700 acres (down from 2000+ acres). He maintains an elite beef herd ranging from 70 to 100 cows. In a break with the past, he jettisoned his machinery fleet, overhauled his field practices, and watched profitability rise. The 70% jump in profits for the Southeast Nebraska producer hinged entirely on cost savings. He implemented regenerative practices across his ranch. He discontinued the use of inputs – fertilizers, soil nutrients, pesticides, and herbicides. Ficke's no till and cover crop investment paid off, but then he came to an important realization. "I didn't factor in soil benefits. We were still farming several thousand acres, but I didn't have a change in my heart, and I didn't have a plan." Instead, he switched over to emphasize, grazing, grazing and more grazing. No more jam-ups in the feedlot. Cows went on a diet of grass and cover crops. "We just let cows be cows. Savings and soil health are building up and this is the same thing our grandfathers did until someone came along and unfortunately said, 'You're not efficient. Buy an upright silo and a confinement building.' Nothing kills soil like tillage. You're just making everyone in the business chain happy but yourself," according to Farm Journal's AG PRO.

Amy Klippenstein & Paul Lacinski, Sidehill Farm & Yogurt, Hawley, Massachusetts.

Amy had a dream 15 years ago that she was a dairy farmer. Through much hard work, Amy and Paul worked their way from farm renters to farm owners. They became the owner/operators of a 225-acre grass farm with 30 cows and a booming, on-farm yogurt manufacturing plant. They view much of their operations through the lens of "grass farmers." They know if they do a good job growing grass, the rest of the farming and cows work out well. Today, they are an all-organic, grass-fed farm and yogurt-maker, selling through-out Massachusetts. Sidehill Farm is a key player in the state's Local Food Movement. Amy and Paul are also forward-looking entrepreneurs who began the "succession search" several years ago. They recently split the farming and yogurt-making enterprises and recruited an experienced young dairy farm family from upstate New York, Gus and Kyra Tafel. They have become highly proficient grass farmers and faster milkers than their mentors, Amy and Paul. One key question for these farms – and others – is succession planning: Who contin-

ues the vision and management in the future? In fact, succession is a big and difficult issue for all farmers.

Jean-Martin Fortier, The Market Gardener, Micro-Farming, Saint-Armand, Quebec

Fortier maximizes yields on a minimum area of land through a "biologically and regeneratively intensive" cropping system. Hand tools and efficient small-scale equipment are the foundation of this approach. These intensive practices allow for tight-row spacing. Multiple successions of plantings in a year contribute to a high ratio of yield/area. Minimizing the growing area increases the efficiency of the farm in terms of labor and growing materials. This standardization facilitates crop rotation, production planning, calculation of soil amendments, and use of irrigation lines and row covers. This regenerative system builds soil health and profitability (Modern Farmer).

Al Gore, Impact Investor and Regenerative Farmer

Former Vice President Gore is a strong proponent of so-called "carbon farming," a form of regenerative farming. Gore said agriculture conglomerates and family farmers alike could theoretically make their farms more productive, while fighting global warming. Gore's laboratory is his parent's family farm in Carthage, Tennessee (Bloomberg). He is focused on scaling regenerative farming to eventually slow climate change.

Retail and Local Foods Suppliers, National Manufacturers

Whole Foods recently determined through customer surveys that Regenerative Ag is the No. 1 trend for its consumers. Local food system advocates and practitioners in western Massachusetts formed an organization for supporting local agriculture 20 years ago. Today, Local Food Systems like Community Involved in Sustaining Agriculture (CISA) unite farmers with consumers, grocery stores and wholesalers. Consumer packaged goods companies such as General Mills, Unilever, Nestle and Danone are all engaged. Danone developed a meaningful financing program for farmers converting to regenerative practices.

General Mills

Has committed to 1 million acres of new, regenerative grain, about 20% of the 5 million acres it has under production. The company said, "It will advance regenerative agriculture practices on 1 million acres of farm-land by 2030. As part of the food industry, we recognize that agriculture contributes to some of our most pressing sustainability challenges, and we believe that the most promising solutions start with healthy soil. We are on a journey to bring soil back to life through regenerative agriculture practices, which protect and intentionally enhance natural resources and farming communities. We believe that to generate positive impact at scale, all types of agriculture—organic and conventional—should be part of the conversation."

General Mills recognizes their future is based on a high-quality sup-ply chain, which is currently at risk due to soil degradation and climate change. As a result, the company is investing for a positive future. Many other companies are also moving toward regenerative agriculture to meet corporate sustainability goals and consumer demands. The wide range of engaged companies includes B-Corps such as Patagonia and Dr. Bronners; environmental organizations such as Environmental Defense Fund and The Nature Conservancy; and national farm organizations, such as American Farm Bureau and the National Farmers Union.

A BETTER FUTURE

Transformative change in society and business never happen in isolation.

They are often led by remarkable pioneers leading, learn along the way, and inspiring many others. And then perhaps 10 to 20 years later, we hit the "moment." Did we create an important "niche" or did we collectively cause a revolution?

Regenerative Agriculture and Forestry may just be one of those moments. It appears to have traction and can bring Red and Blue states to a middle ground. This revolution is not intended to undo conventional agriculture. Rather, it is seeking to help the agronomic ecosystem find new and better ways, to improve and evolve. In the end, it is about soil, the farmers who work it, carbon and the communities that hold it all together.

Because of the juggernaut of Climate Change, nearly every major agen-da for action in the U.S. from corporate to government to citizens will include carbon and solar energy. It often takes a big tent to effect break-through change. Regenerative Agriculture and Forestry may well be the best big tent for rural America and for urban America.

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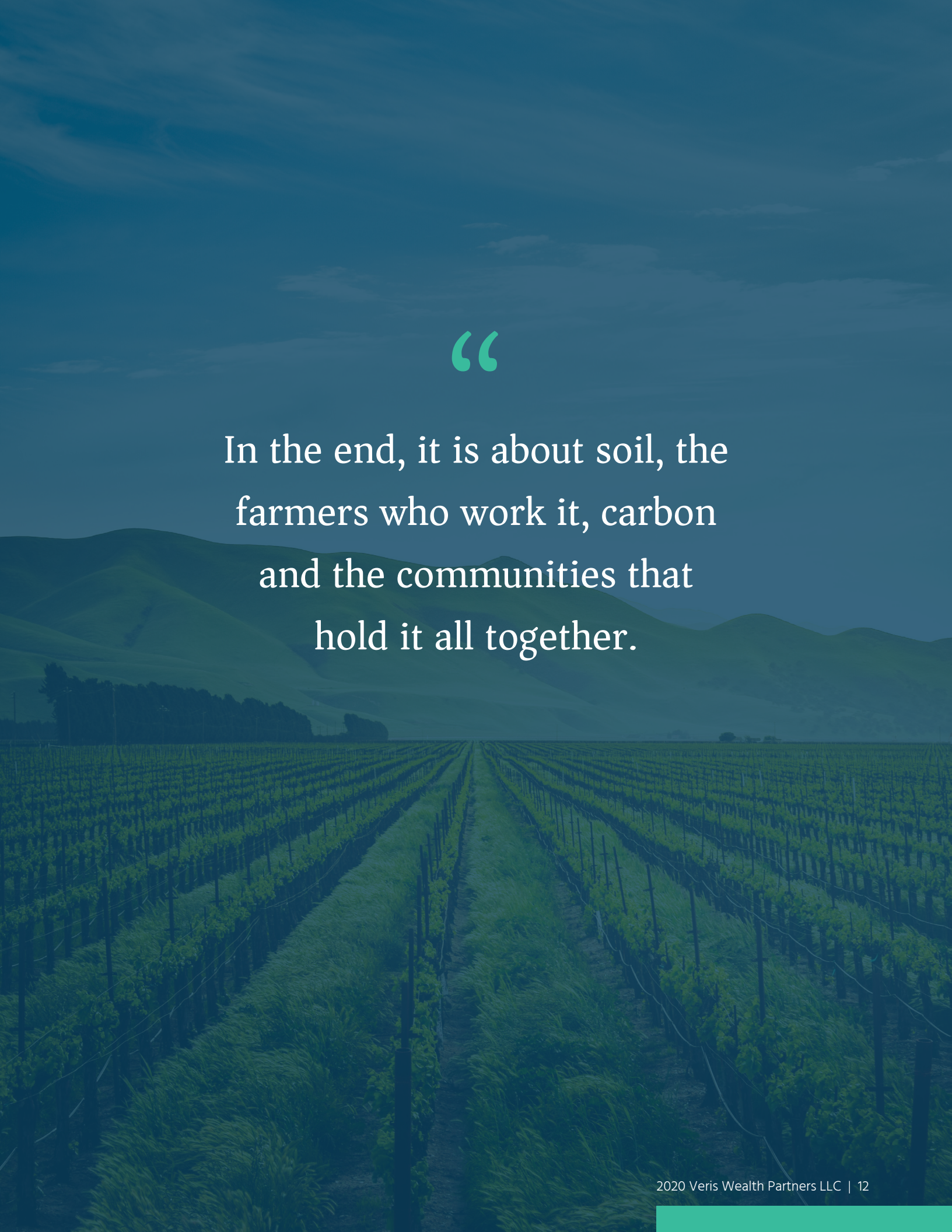

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