

State of Ag Resilience

What we've learned about our climate-threatened food system — and what must be done now.



Report prepared by:



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From our CEO & Co-Founder

At Regrow, we've long recognized the need to support resilience and empower climate action across our food system, and we've made significant progress with our partners. Today we monitor nearly 1.4 billion acres of agricultural land worldwide. To date, we've contracted millions of acres for regenerative practices, forecasting an abatement of 1.3 million metric tonnes of CO2 equivalent. Through these efforts, \$46 million has been paid directly to farmers adopting regenerative methods, and thousands of growers have enrolled in programs that build resilience at scale. We're grateful to our partners for their dedication to resilience, and we are passionate about carrying this work forward. We look forward to continuing progress in 2025 and beyond.



In the pages ahead, you'll discover the state of resilience in ag supply chains today, the roadblocks that remain on our path to progress, and opportunities for our industry to evolve. Leading companies are beginning to collaborate, quantify the benefits of investing in resilience, and expand their networks to build a more secure food system. But the work is just beginning.

As you read this report, we invite you to reflect on the actions your business can take to contribute to a more resilient, sustainable food system. By learning from today's leaders and focusing on measurable outcomes, we can secure the future of agriculture — ensuring it is equipped to withstand climate challenges and support the future of our businesses.

Onward,

Anastasia Volkova
CEO and Co-Founder, Regrow Ag



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Climate impacts are here — businesses must adapt

In 2024, our global climate exposed growing vulnerabilities in the foundation of our food system. Supply shocks driven by climate events and price volatility — coupled with rising global food demand — threatened the security of our system and made building system-wide resilience a business imperative.

The next five years will be decisive as business and policy leaders face the most challenging questions of their careers. How can we scale food production to feed a growing population while mitigating negative environmental impacts? How can we build a food system capable of thriving in a volatile climate?

Implementing regenerative and sustainable practices on our farms is a critical component of addressing these challenges. However, as anyone who works in agriculture will tell you, it's never simple.

The need to build resilience in our food system — and the questions that come along with it — shaped Regrow's 2025 State of Agriculture Resilience report. Regrow surveyed 21 of the largest enterprises across the ag value chain and analyzed data from the Regrow Agriculture Resilience platform to understand current trends, challenges, and opportunities in resilience.

This report serves two key purposes:

Report objectives

01 Provide a clear picture of where we stand today, including sustainable and regenerative practice adoption, evolving policies, and the economic impacts of climate change on supply chains.

02 Highlight four critical strategies for advancing resilience, supported by insights from industry leaders who are already taking action, as well as Regrow's experience working with companies across the value chain.

Setting the stage

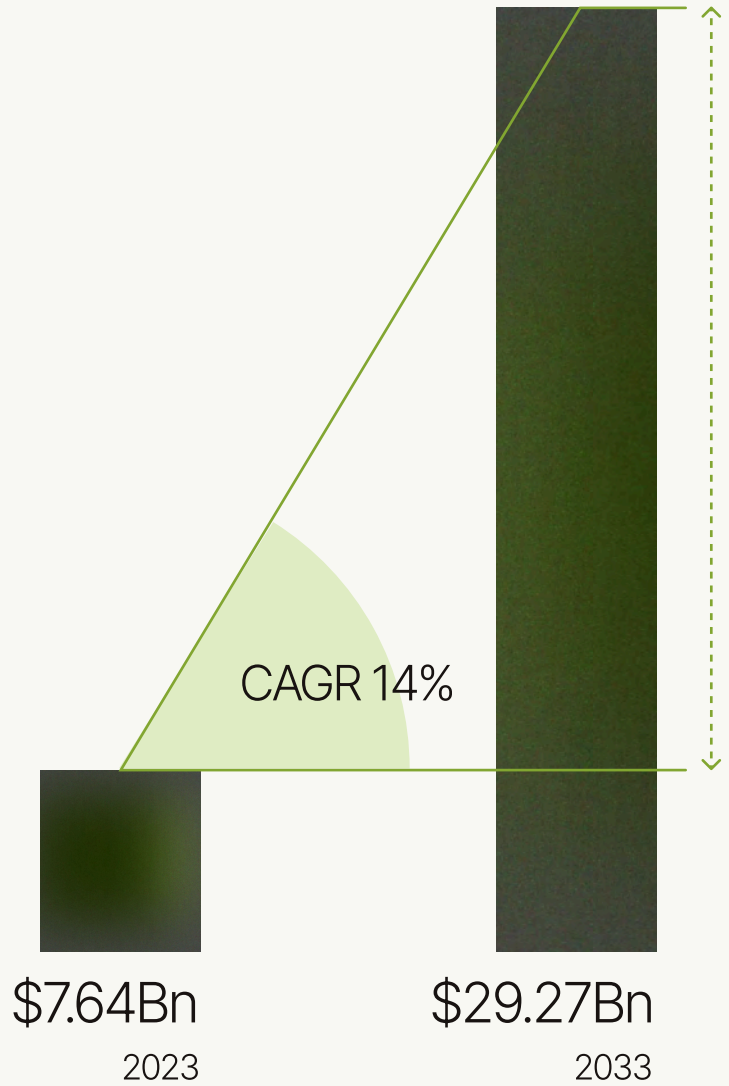
Regenerative agriculture, a key tactic in building supply resilience, is gaining momentum through investments from the business, public, and nonprofit sectors. The global regenerative agriculture market is expected to reach \$29.27 billion by 2033, with a current compound annual growth rate (CAGR) of more than 14%.

Businesses are taking note. Sustainability professionals and executives increasingly view supply resilience as a business imperative, as highlighted in our 2024 trends report Seeds of Resilience. Regrow customers and partners are scaling regenerative practices globally with commitments to incentivize practice change on more than 8.3 million acres of land.

However, there's still much more to do.

\$21.63Bn

The expected growth in the global regenerative agriculture market over the next 10 years

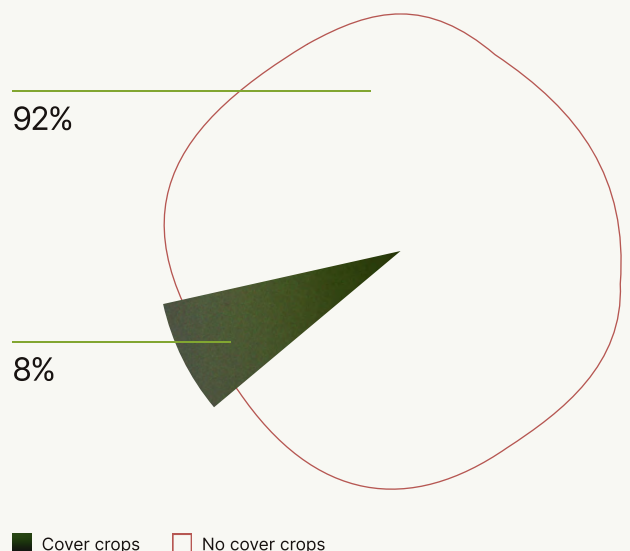
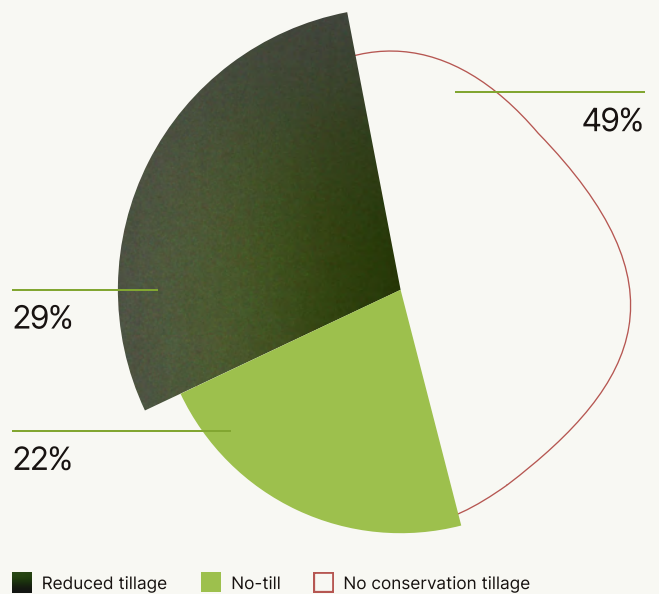




Practices proven to build resilience aren't being adopted fast enough

Despite growing awareness of the benefits of regenerative agriculture, practice adoption is not keeping pace with the urgency of today's challenges. According to Regrow data, only 8% of agricultural land in the continental United States is currently planting cover crops. Conservation tillage is implemented on just half of farmland. This leaves the majority of agricultural land without the use of growing practices that are central to building farm resilience and reducing environmental damage from extreme weather events.

There are hurdles to adopting regenerative practices at the farm level, including difficulty navigating the financial returns of regenerative ag and cultural differences between farmers and those investing in programs. Businesses play an important role in addressing these challenges, but beyond supporting practice adoption, companies can empower resilience through other actions — many of which were highlighted in our survey.

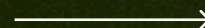


Key findings

Building resilience across the agriculture value chain is a complex challenge, and there's no established rulebook to follow. To understand how companies are navigating this uncertainty, we spoke with leading companies across the industry — from global agribusinesses to leading food and beverage brands.

Conversations with these leaders revealed four key insights about what defines the current state of agriculture resilience. They shed light on the challenges that make progress difficult, the priorities driving action, and the strategies leaders are using to implement change.

These findings provide a clearer picture of what's working today and where the rest of the industry can focus its efforts to accelerate progress.



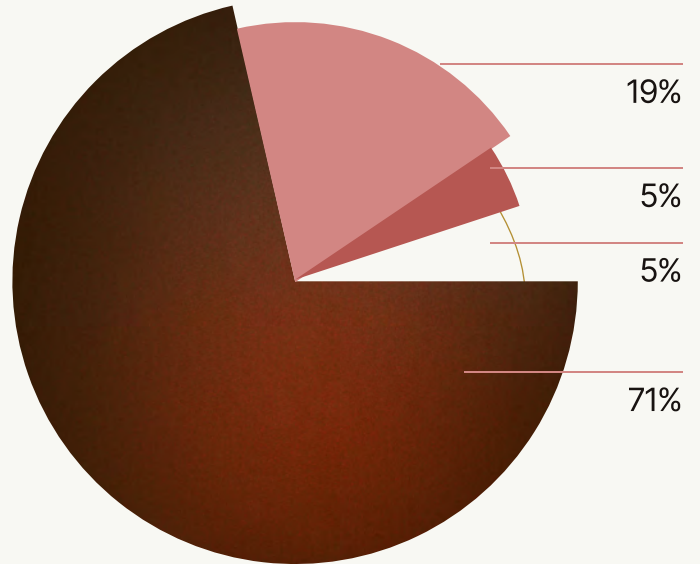
Finding 1

Climate change is already impacting our food supply

More than 70% of companies we surveyed are already experiencing the impacts of climate-related volatility in their supply chains. Nearly every company we spoke with anticipates impacts in the future. These impacts, driven by extreme climate and weather events, take the form of supply disruptions, higher commodity prices, and empty shelves for food retailers.

How do companies view the potential impact of climate change on their supply chain?

- Our supply chain has already been impacted by climate-related volatility.
- We expect our supply chain to be impacted soon.
- Our supply chain may be impacted in the future.
- We do not anticipate any impact on our supply chain due to climate change.



Food Inflation Caused by Climate Events

Last year, climate events were directly linked to spikes in food prices across the globe, including in North America, Europe and South America. These disruptions have contributed to rising food inflation, creating economic strain on consumers and businesses alike.

The global cost of climate change reached \$143 billion annually in 2023, equivalent to \$16 million every hour. Data show that much of this cost can be linked directly to human activity. For example, nearly 45% of the economic damages from hurricanes Helene and Milton (2024) were attributed to human-caused climate change.

North America

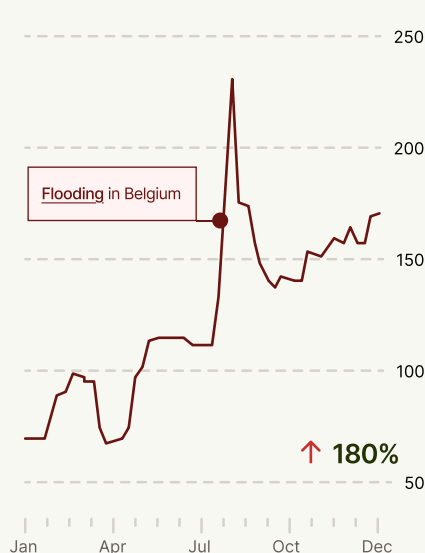
Saskatchewan yellow pea price (C\$ per bushel)



Source: Refinitiv

Europe

Belgian Bintje potato price (\$ per tonne)



Source: Mintec

South America

ICE arabica coffee price (\$ per pound)



Source: Government of Saskatchewan

Goal-setting is key to addressing disruption

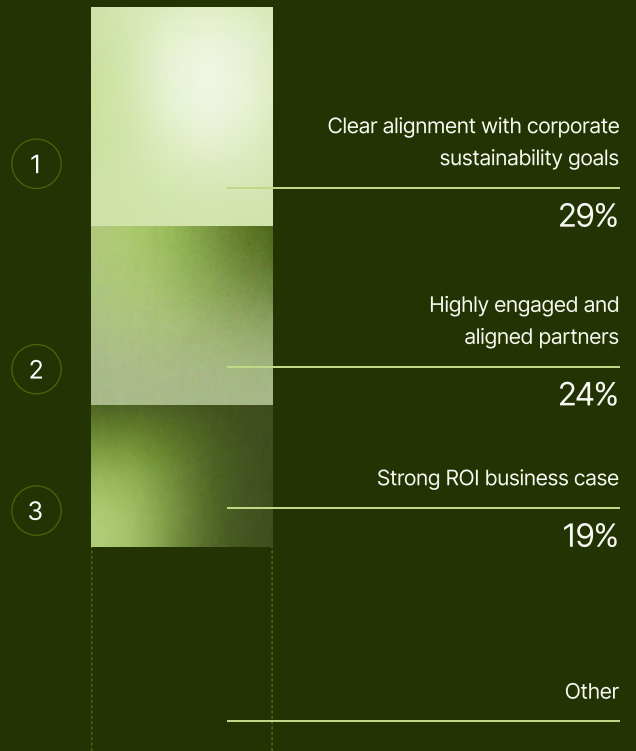
Despite the escalating impact of climate on our food system, corporate response to these trends is mixed.

Scope 3 emissions account for upwards of 90% of a company's total emissions in agricultural value chains, making them a critical focus area for climate action. While more than half of companies we surveyed have publicly stated and quantified scope 3 emissions reduction goals, many others have yet to commit to targets.

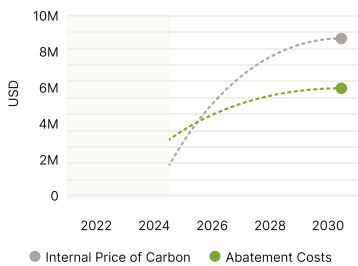
These goals play a crucial role in shaping business strategies. Survey respondents identified “clear alignment with corporate sustainability goals” as the most effective way to secure organizational investment in regenerative ag programs.

For example, Kellanova and Oatly have both established public targets for regenerative agriculture adoption, sustainable sourcing and emissions reduction. These public targets allow the companies to prioritize efforts across internal departments. Oatly has aligned both the sustainability department and its sourcing team around regenerative agriculture goals, ensuring that the company sources from regenerative farmers for their entire North American business. The actions of businesses like Kellanova and Oatly have inspired other industry players to make investments in regenerative agriculture.

What has been the most effective strategy for securing your company's investment in regenerative ag?



Total abatement ROI over time



Intervention acres in 2030

6.5M acres

Total producer incentives in 2030

\$8.7M

Total abatement ROI in 2030

\$2.5M

Strong measurement tools are needed to track impact and progress

In order to set scope 3 emissions targets, companies need an accurate way to baseline emissions and measure the impact of their efforts to reduce them. Companies have historically had a hard time measuring scope 3 emissions because the activities contributing to scope 3 are not controlled directly by the company, but indirectly through the value chain.

Recent advancements in satellite imagery, machine learning, and carbon modeling make scope 3 analysis in ag supply chains scalable and cost-effective. These technologies enable companies to quantify scope 3 emissions with precision and set data-backed goals for reduction. Likewise, this empirical data gives suppliers and buyers a consistent view of their shared emissions to use in developing reduction plans.

Setting goals and measuring emissions is essential for managing the problem. However, there's another set of metrics that can help us accelerate our progress in building supply resilience: metrics that show the return on investment (ROI) of sustainability programs.



Finding 2

**Companies need a
clear ROI to invest
in resilience**








Rising [interest rates](#), inflation, and decreased consumer spending has led companies to feel a “[capital crunch](#).” This, paired with [decreasing investment in ESG](#), has led companies to scrutinize sustainability investments more closely. That means every investment in a sustainability program must have a clear and compelling ROI.

In our survey, 25% of companies identified challenges in proving ROI as the most significant hurdle to driving investment in regenerative agriculture programs. Respondents emphasized the need for data that demonstrates the tangible benefits of regenerative programs, such as carbon abatement, emission reductions and profit for farmers. These data are critical for illustrating the ROI of regenerative agriculture and providing the evidence necessary to secure company investment.

However, emissions abatement is just one component of the ROI companies realize from investments in regenerative agriculture. A complete view of benefits can provide substantiation for investment that meets the scale of the opportunity for global practice change.

Biggest hurdles to company investment in regenerative agriculture

- 1  Difficulty quantifying ROI
- 2  Difficulty finding partners (upstream or downstream)
- 3  Unclear guidance from regulatory bodies
- 4  Lack of internal expertise in program management
- 5  Split incentive in investing (free riders)

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There has to be a return on investment or an economically viable reason to participate in this ecosystem. As a company focused on producers, we want the producer to win, because when the producer wins, we win as their partner.

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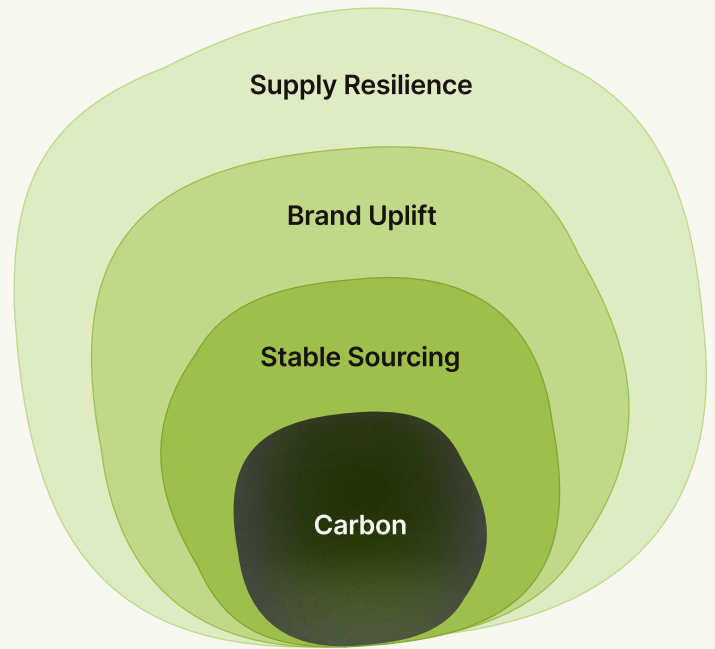


Ryan Locke
 Director of Sustainability Partnerships & Business Development at Nutrien

Industry leaders are broadening their view of ROI

As more companies build regenerative programs, the industry is beginning to see the indirect benefits of these programs — the ways in which regenerative farming can help establish stability in procurement, as well as brand uplift, and resilience across the supply chain.

Recognizing and quantifying the full ROI of regenerative agriculture is critical for demonstrating the business case for scaling programs to meet the challenges of climate change. This complete accounting of ROI goes beyond carbon outcomes to include other fundamental aspects of business strategy.



Understanding the ROI of Regenerative Ag Programs

Carbon	Sustainable Sourcing	Brand Uplift	Supply Resilience
Cargill helps consumer packaged goods (CPG) companies make progress toward net-zero commitments by selling certified carbon outcomes from its RegenConnect™ program, which offers financial incentives directly to farmers for adopting regenerative practices.	Oatly’s regenerative farming program aims to source 100% of its most strategic ingredients sustainably. The company is committed to supporting the ecology of the land as a means of building stronger systems with more stable crops.	Kellanova increased its shelf space in Walmart due to on-pack branding for its regenerative products.	Unilever would have faced 40% shortages and yield loss due to drought were it not for its regenerative ag programs. The yield resilience of farms employing regenerative practices significantly reduced the company’s spend compared to sourcing from conventional farms.

Data demonstrating the direct and indirect ROI of regenerative practices can help companies build a comprehensive business case for resilience and equip stakeholders to make informed investments in their supply chains. This data includes clear quantification of the benefits of regenerative agriculture across business units, using metrics that are relevant to stakeholders across the organization.

For example, the direct and indirect ROI of regenerative practices include quantified carbon outcomes or emissions reductions, stabilized ingredient pricing, increased demand for sustainably-branded products, and the monetary value of avoided losses when climate events strike a specific supply region.

Finding 3

Collaboration is essential, and there are many effective approaches to partnership

Leading companies rely on close coordination across stakeholders to implement regenerative agriculture programs. Buyers need access to farms to implement and verify practices, suppliers need buyers for the commodities and outcomes they produce, and companies must align internally because these programs impact multiple business units.

Many of the leading companies we surveyed recognize the value of collaboration, and are taking varied approaches to partnerships based on their business needs. Nearly 70% of surveyed organizations reported sharing ownership of sustainability initiatives across at least two departments, and 80% of surveyed companies are working with supply chain and customer partners as external collaborators.

By coordinating efforts and aligning incentives, companies can drive greater impact and ensure the ROI of regenerative programs is realized across their operations. This requires shared accountability and buy-in from multiple teams, ensuring that sustainability goals are integrated into business strategy, supply chain decisions, and financial planning. When all stakeholders — from procurement to finance to sustainability teams — are invested in the success of these programs, companies can scale their impact most effectively.

When it comes to collaborative frameworks for external partnerships, the companies we surveyed have worked with both supply chain partners and landscape partners to build and scale regenerative programs. Supply chain partners help companies reach program participants and can serve as co-investors in programs. Landscape partners — organizations that work on, or source from, the same farms and regions — can work together to build more resilient sourcing regions, rather than supporting only their own supply chains.

70%



Companies sharing ownership of sustainability initiatives across at least two departments

80%



Companies working with supply chain and customer partners as external collaborators

“

Getting key stakeholders together throughout the value chain is really important. And more of that is needed...it takes both sides. It's not a one-way street. The number one moment where resilience really struck me was when our biggest customer came to us and said, 'We need this for our business.' It's very, very important not only for our business but for our industry as well.

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Vaughn Duitsman
Director of Sustainability at Bartlett



PEPSICO

A case study in collaboration

PepsiCo drives full company collaboration by embedding sustainability across its business. Through [PepsiCo Positive \(pep+\)](#), the company's strategic end-to-end transformation, PepsiCo embraces sustainability as an integrated business priority. pep+ is structured around three key pillars — Positive Agriculture, Positive Value Chain and Positive Choices — each aligning different parts of the organization toward the vision of building a more sustainable future.

At PepsiCo, sustainability is woven into daily business operations, with initiatives like its [Sustainable Farming Program](#), which was initiated in 2018 and has enabled PepsiCo to sustainably source 90% of its grower-sourced crops^[1]. These efforts show the importance of resilience at the highest levels of the organization and across specific business units (for example, sourcing and procurement).

PepsiCo's leadership views sustainability as essential to long-term success. [CEO Ramon Laguarta](#) has [emphasized](#) that pep+ is “the future of our company,” ensuring that every business unit plays a role in supporting sustainability. By fostering internal alignment and forging external partnerships with supply chain and agricultural partners, PepsiCo demonstrates how shared incentives and accountability can help drive meaningful progress in spreading adoption of regenerative agriculture practices.

Margaret Henry, PepsiCo's VP of Sustainable & Regenerative Agriculture, recently explained to Regrow how regenerative agriculture shapes PepsiCo's business, its supply chain and the landscapes it operates within:

“

“Our [positive ag] plan is about the transformation of our business. It's how we're future proofing PepsiCo.

It started with sustainable ingredients. We're striving to sustainably source 100% of key ingredients by 2030 and quickly realized that because, of course, farmers grow more than one thing...we must embrace a whole farm mindset. This mindset and way of working started our current evolution towards supporting regenerative farming.

That's been transformative...but what about the landscape around a regenerative farm or field? What if everyone upstream was working on the same plan? This is where PepsiCo is starting to evolve towards an approach to sustainable and regenerative landscapes, ecosystems, and communities that are resilient.”

”



Margaret Henry
PepsiCo's VP of Sustainable & Regenerative Agriculture

PepsiCo's approach ensures internal alignment between sustainability, procurement and finance teams, while also supporting collaboration with supply chain and landscape partners. Some project examples include:

External Partnership	Example	Benefits
<p>With local trusted advisors</p>	<p>PepsiCo Partners with Southeast Research Farm (SERF) to reach growers in Saskatchewan and Manitoba who grow key ingredients like canola and oats.</p> <p>PepsiCo <u>committed to \$216 million</u> in support for three trusted local farm advisor organizations in the United States for long-term partnership.</p>	<p>Access to program participants, educational resources for farmers, shared resourcing for program development, higher incentives for program adoption.</p>
<p>With landscape partners</p>	<p>PepsiCo is working with General Mills, other CPGs and not-for-profit organizations Sustainable Food Lab and Red River Basin Commission to empower regenerative agriculture in one region (North Dakota and Manitoba). The project serves multiple businesses that source from the same region and offers benefits in water quality, carbon outcomes and regenerative agriculture.</p>	<p>Combined local expertise with large-scale CPGs, shared benefits (practice adoption, carbon outcomes, water quality) co-investment, reduced climate risk.</p>

As PepsiCo demonstrates, companies need to adopt two best practices: (1) establishing shared ownership across business functions and (2) cultivating strong, diverse partnerships across the supply chain and beyond. These collaborations can positively support the change required to build supply resilience.



[1] For grower-sourced crops, sustainable sourcing refers to meeting the independently verified environmental, social and economic principles of PepsiCo's Sustainable Farming Program (SFP). PepsiCo's Sustainable Sourcing goal applies to areas where PepsiCo has purchasing control and excludes joint ventures, franchises, co-manufacturers and co-packers, and other third parties over which we do not hold purchasing control

Finding 4

**Policy progress is
important, but
waiting for it is a
losing game**

A number of regulations and policies intended to address climate change struggled to gain momentum this year. Scope 3 emissions were excluded from recent U.S. SEC regulations, California’s new climate laws face legal challenges, Greenhouse Gas Protocol’s Land Sector Removals and Guidance (LSRG) has been postponed more than a year, and EUDR has experienced similar delays. These delays and setbacks undermine the transparency and consistency that businesses seek to support large-scale investments in emissions tracking and reduction.

Regulations can be both a barrier to and a motivator for companies to make sustainability investments. In our survey, 20% of industry leaders cited the lack of clear guidance from regulators as the most significant impediment to investment. On the other hand, more than 40% of respondents listed industry regulation as one of the top two drivers for corporate climate action (second only to supply and commodity price risks). Clear guidance motivates companies to act, whereas unclear or absent guidance leads companies to wait for more defined frameworks before taking action. This dynamic highlights both the challenges and the opportunities inherent in the current fragmented global policy landscape.

While fragmented and inconsistent policies pose challenges, some of the latest frameworks are aligned with global standards which represents a positive trend. For example, both Europe’s Corporate Sustainability Reporting Directive (CSRD) and Science Based Targets Initiative (SBTi) use the same guidelines from Greenhouse Gas Protocol (GHGp) for disclosure and reporting. These shared standards provide a clearer foundation for businesses to measure, report, and reduce emissions, creating consistency in a complex landscape.

Although some of the guidelines themselves, including GHGp LSRG, are still being finalized, their adoption by multiple frameworks shows the potential for greater coherence in the market. This alignment helps companies focus their efforts and investments on strategies that both meet regulatory expectations and drive measurable climate action.

Top five influential drivers of corporate climate action

- 1 Procurement risks, including supply availability and price volatility
- 2 Industry or regional regulations/legislation
- 3 Expectations of public stakeholders
- 4 Consumer behavior and market trends
- 5 Input from private investors/board of directors

43%



of respondents listed industry regulation as one of the top two drivers for corporate climate action.

Preparing for change

Given the urgency of climate change, the clear business case for resilience, and an ecosystem of partners ready to collaborate, companies cannot afford to wait for policy to dictate action. While regulatory uncertainty remains, inaction is the greater risk.

Leaders in the agriculture value chain are not waiting — they are aligning with partners, quantifying ROI, and scaling regenerative agriculture programs now to future-proof their businesses. As experts highlighted in a recent Regrow policy briefing, organizations can allocate resources, engage with partners, and implement systems that drive impact regardless of shifting regulations. Companies that lead the way will not only be better positioned for future compliance, but will also gain a competitive advantage in the market.

Looking to the future

Resilience has momentum, but we need to concentrate our efforts on the areas that count

In 2025, the case for regenerative farming as a path to agriculture resilience is clear. For companies seeking to develop their own regenerative ag strategy, there are four key lessons from our research:

- 01** Quantify the impact of climate change on your supply chain. Evaluate which sourcing regions and supply chains have been impacted by severe weather in the last couple years and which are vulnerable to future events. Consider how these events will impact your business.
- 02** Develop a complete view of your regenerative ag ROI. Beyond the immediate benefits of regenerative ag programs, consider how these efforts can mitigate the risks of inaction and support future business growth. Consider the opportunity cost of failing to act, whether measured in supply disruptions, price spikes, farmland lost, or farmer livelihoods threatened.
- 03** Build strong internal and external partnerships. Look to other departments and partners across the supply chain to build momentum for regenerative ag investments. Draw from established best practices to make partnerships efficient and mutually beneficial for all stakeholders.
- 04** Prioritize action now. In the face of policy and regulatory uncertainty, start building the teams you'll need to scale regenerative programs.

By prioritizing efforts in these areas, we can build on the experiences of industry leaders and create a more secure and resilient food system. The challenges are significant, but with the right data, strong collaboration, and decisive leadership, we can build momentum for resilience and accelerate regenerative practice adoption on a global scale.



Ready to start building resilience in your supply chain?

Regrow helps companies across the value chain get from baseline to pilot program to implementing regenerative ag at scale. [Talk with a Regrow expert](#) to learn how you can build your business case for resilience today.

→ regrow.ag/contact-us

