

Assuring the Food Supply Chain

A business leader's guide to reducing emissions, mitigating climate risk, and ensuring business longevity



Climate change poses significant challenges to our food system, impacting farmers' fields and destabilizing supply chains. Conventional agricultural supply chains exacerbate climate change, threaten food security and affect performance for businesses with agriculture-based supply chains.

Both the agricultural sector and broader industries have contributed to these issues, and addressing them requires a collective effort to secure the future of agriculture-based supply chains.

How can we assure these supply chains? We need to make our food systems resilient. This is a problem we've been facing for decades, and it has now become apparent that we haven't been able to preserve or build back resilience at a large enough scale to combat the risks ahead.

For companies with agriculture-based supply chains, resilience is critical to long-term business success. In order for businesses to be successful, it's imperative to prioritize both supply chain stability and environmental sustainability, as these two are inextricably linked.

We must shift our focus to creating a more holistically resilient food system. This approach will enable the food system to support itself through uncertain conditions and contribute to climate mitigation by reducing its overall impact.

This isn't just a problem for sustainability professionals. This is a problem for business leaders.

It's time for us to see climate change as an immediate and holistic risk to our food system, and for companies – particularly, CPGs and agribusinesses across the food supply chain – to take action.

It's time to take this problem to the top of our organizations' priority lists and for CEOs to lead the charge in building system-wide resilience.



The path to resilience: acting on material scope 3 emissions

Climate change has a significant impact on land-based supply chains, destabilizing the food system across every realm. According to the [World Economic Forum](#), “extreme weather is driving food prices higher,” particularly for key commodities like rice, soybeans and potatoes. [Spikes in worldwide food prices](#) can be attributed to the effects of climate change and unsustainable agricultural practices, among other causes. A [study by NASA](#) predicts significant impact from climate change on crops over the next ten years, including a potential 24% decline in corn yields.

Climate change is accelerated by GHG emissions, the majority of which [come from corporations](#). For companies in the food and beverage sector, often more than [90% of emissions](#) are scope 3 emissions, which come from the company's suppliers, including growers. Of those scope 3 emissions, an average [72% are on-farm emissions](#).

If we can manage and reduce scope 3 emissions, we can make progress building resilience to climate change and stabilizing many of the building blocks for our industry that are threatened today. Mitigating scope 3 emissions is imperative, not only in achieving our climate objectives, but also in assuring supply chain stability and managing business risk.



Too few agribusiness and CPG CEOs are taking action

According to the [Science Based Targets Initiative](#), of the nearly 300 food, beverage and agriculture companies that have set scope 3 emissions targets, only eleven (4%) have set targets within the food, land and ag (FLAG) sectors. This lack of action has been recognized at recent world sustainability talks, including COP28 and Davos: for the first time, a full day was dedicated to agriculture at COP28, and “Long-term strategy for climate, nature and energy” was one of four main themes on the [Davos agenda](#).

By not addressing and reducing our land-based emissions, we’re contributing to a multitude of factors that make our food and agricultural systems ever more in peril:

Escalating commodity prices: a report [covered by CBS](#) shows that continued global warming is projected to increase commodity prices between 0.6 and 3.2 percentage points by 2060. Price increases threaten profit margins and impede business growth.

Inflation: a recent [Bloomberg study](#) linked climate change directly to food inflation and volatile price swings.

Supply chain disruption: a [model assessment](#) by the Scientific and Technological Research Council of Turkey, an area already [prone to desertification](#) due to cash crop cultivation, forecasted a negative trend for supply chain stability with increasing climate change consequences such as extreme heat and drought.

Disruptions to critical infrastructure: the [World Economic Forum](#) recently cited climate change as a predictor for ‘disruptions to critical infrastructure,’ along with economic downturn, a concentration of strategic resources and labor shortages.

These factors should push scope 3 emissions management to the forefront of the CEO’s agenda. By managing scope 3 emissions – which include farm-based emissions – we can cultivate crops that are more resistant to climate change, address financial risk and curb losses from supply chain instability. These theories are supported by [recent research](#) and synthesized in Regrow’s [2024 Trends Report](#).

CEOs: take a company-wide approach to business longevity through emissions reduction

It’s possible to incorporate more resilience and reduce risk across your business and the agriculture industry, but only if you take a holistic approach to transforming supply chains and reducing emissions.

CEOs must prioritize this work today to mitigate the threats facing their companies and consumers. The necessity of CEO involvement was highlighted by the [World Economic Forum](#) in a recent article, stating,

“CEOs that proactively address the changing landscape will be able to build a long-standing competitive advantage while playing a vital role in shaping a climate-safe global economy.”

So, what is the holistic approach CEOs need to manage? In short, it’s a holistic climate risk mitigation strategy, and it can be summarized in 3 steps:

A Holistic Approach to Climate Risk Mitigation



1. Measure emissions

As the common phrase goes, “you can’t manage what you can’t measure.” Visibility is incredibly important when it comes to emissions mitigation, and even more so for scope 3 emissions.

Scope 3 emissions have been historically difficult to measure. The majority of scope 3 emissions are [on-farm emissions](#), which can lack transparency and are quite dynamic — they vary based on changes in agricultural systems, regions, weather patterns and other factors.

Nowadays, it is possible to estimate scope 3 emissions much more accurately for commodity crops and large-scale specialty crops. New advancements in land-based climate action have brought field-level visibility into agricultural systems, allowing companies to assess emission factors at ground level with dynamic data.

Satellite imagery and impact models, which are increasingly used today, can estimate the environmental impact of farming and provide unprecedented visibility into emissions across supply sheds. With this visibility, companies can gain an understanding of their true footprint, identify areas with high emissions (and therefore, high potential for emissions reduction), and expand partnerships with their most sustainable suppliers. Visibility offers a more holistic view of emissions and lights the path towards holistic emissions management — the next step in the process.



2. Manage emissions

After establishing a reliable baseline of emissions, leaders can use that baseline to develop a path toward climate goals and increased resilience, including a detailed plan for emissions management.

At Regrow, we call this process an Impact Gap analysis.

What is the Impact Gap?

The Impact Gap is the delta between a company's emissions reduction goals and long-term climate commitments, and its current trajectory toward those goals.

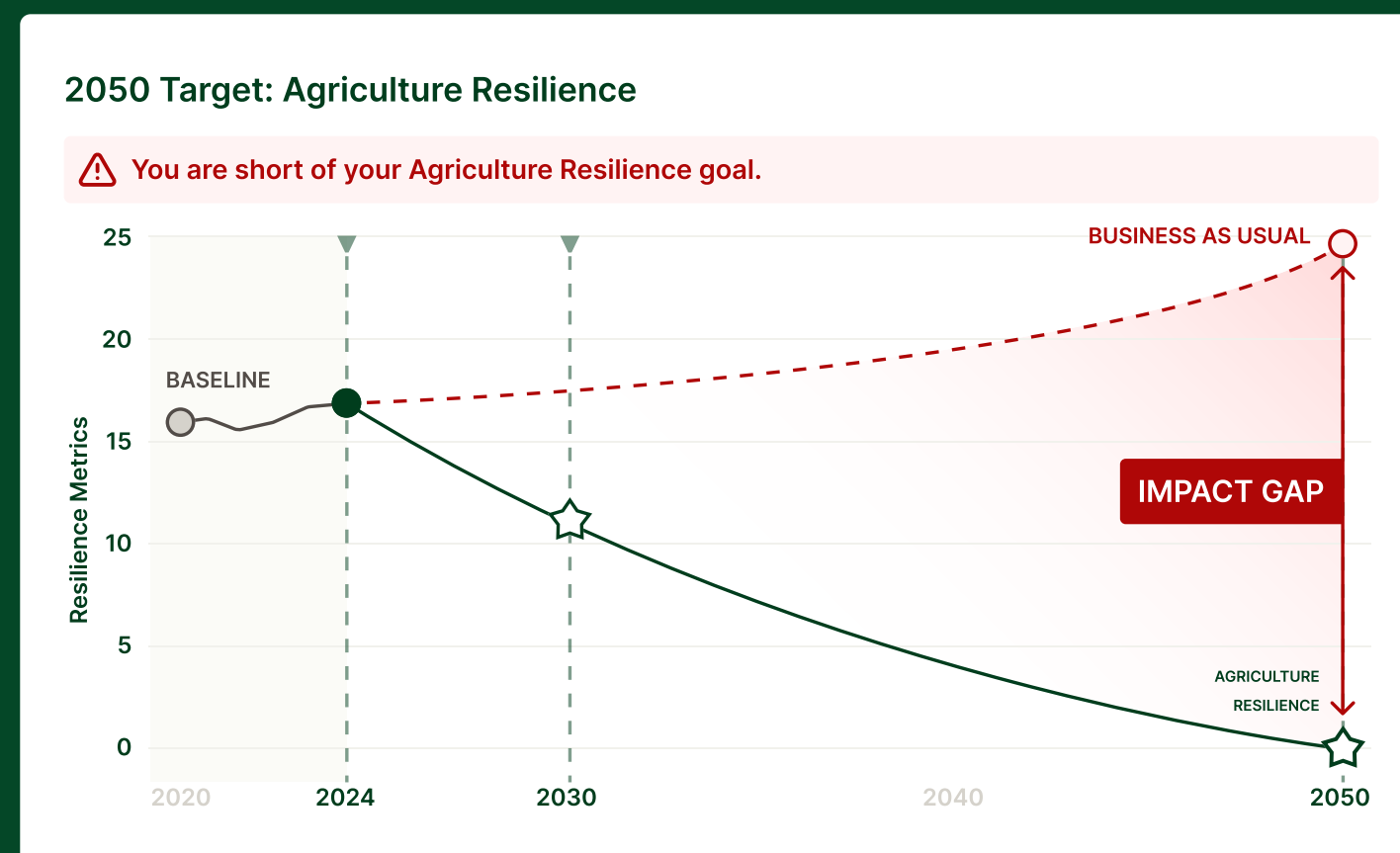


Figure 1: The Impact Gap

Imagine that a company maps its current emissions and extrapolates the approaches it has used thus far from now to 2030. Most likely, the company will find that, at the current trajectory (represented with a dotted line on the chart above), it will not meet its climate goals or build resilience quickly enough to assure its supply chains from significant losses due to changing climate.

An Impact Gap analysis provides a clear view of whether, or how drastically, a company must change its trajectory in order to meet climate goals and build resilience. Think about this like the [IPCC's 1.5°C trajectory](#), which is a shared goal to keep global warming below 1.5°C. The IPCC is constantly monitoring progress toward this goal, and adjusting our estimated path to reaching (or missing) that goal. An Impact Gap analysis is much the same, but at an individual company level, rather than a global level.

Once we quantify the Impact Gap, we can strategically realign our efforts to meet our sustainability goals. It's important to recognize that businesses frequently need to manage climate risks while pursuing growth. In such scenarios, reducing production volumes is typically not feasible. Instead, the focus shifts to increasing the volume of sourced ingredients and products. Consequently, we must work to reduce the environmental impact per unit of product sourced.

There are 2 ways that a company can attempt to reduce the environmental impact of product:

1. Work with suppliers to lower environmental impact.

This is often the more practical strategy, resulting in significant long term business benefits. This could mean establishing regenerative agriculture programs, finding low-impact commodities within supply sheds or incentivizing sustainable practice adoption with growers. These changes all work to lower emissions within a supply chain, and typically come with long-term cost savings, improved supplier relationships, and improved business resilience from assured supply. This strategy protects the business' top line as much as its bottom line. These programs, if effective, are optimized for both scale and impact.

2. Move sourcing to different countries to access materials with lower emission profiles.

This is often impractical and merely shifts the issue outside of the company (also known as "scope 4"), rather than achieves the actual impact.

3. Incentivize transformation across the business

Resilience not only strengthens individual business units but can be the unifying strategy for the entire business. By weaving expertise and insights throughout all business functions, we ensure that resilience is foundational in every decision-making process. This integrated approach guides both individual units and the entire organization. As we assess our practices, we should consider on the following:

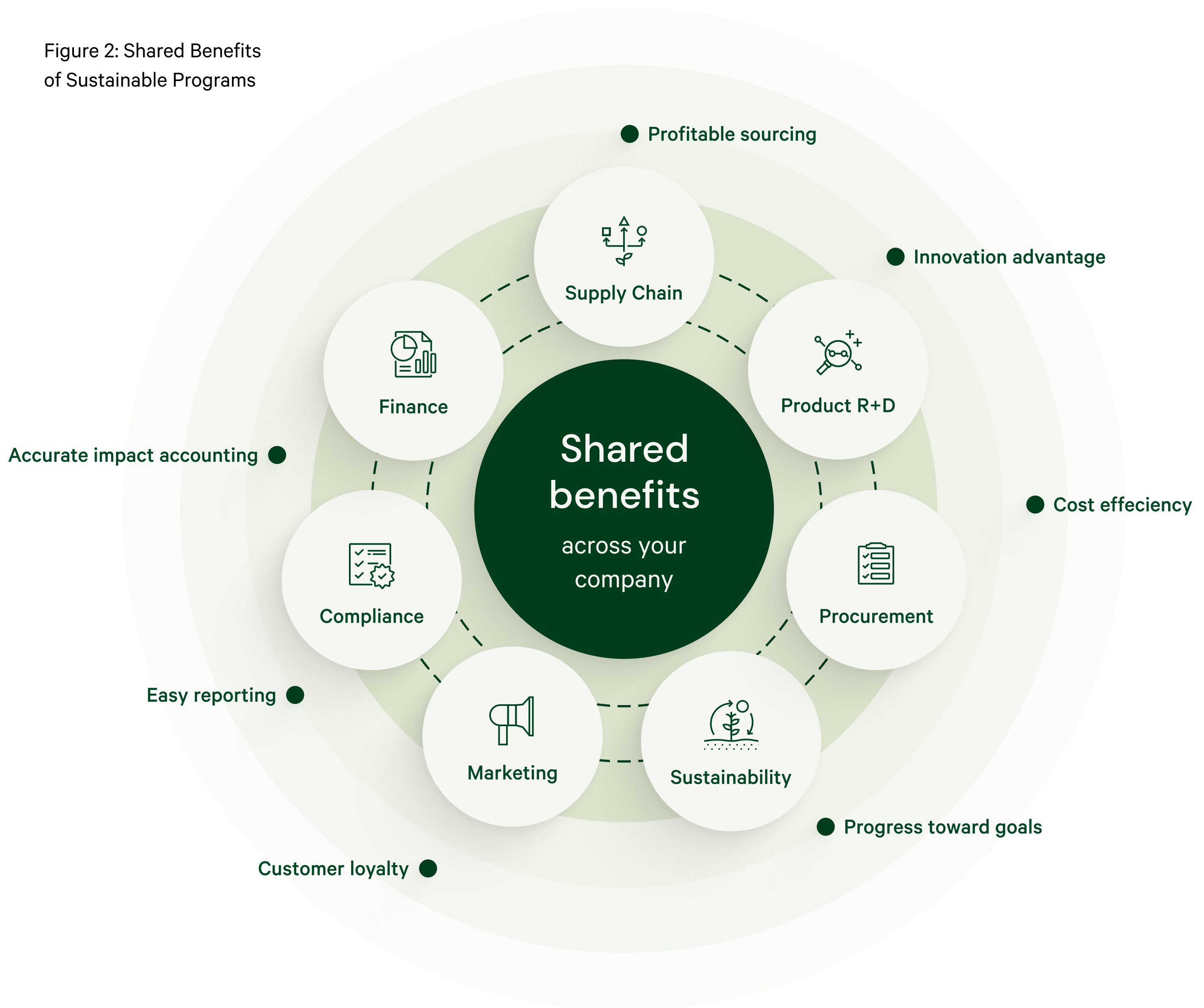
- Is **sustainability** expertise integrated across the organization, e.g. procurement, product development, marketing, risk, investor relations?
- Do **procurement leaders** have the insight and support to make purchasing decisions based on the environmental impact of purchased goods and services? Are they enabled to take into account supply shed and supply chain resilience when making purchasing decisions?
- Do **R&D professionals** have visibility into the environmental impact of product formulation decisions that are aligned with the company's Net Zero strategy?
- Are **compliance** or **enterprise risk management** teams able to assess the cost of delaying climate action, including the cost of supply chain disruption, lost business and pricing volatility?
- Does the **financial risk management** team have access to the **cost** model of the GHG emissions reductions between now and 2030/2050, compared to the potential benefits of these programs?



By understanding the goals and needs of contributors throughout an organization, leaders can empower business functions and craft a more cohesive strategy for emissions reduction. Often, this empowerment involves incentivizing top management with sustainability goals as key performance indicators (KPIs) to ensure progress. Such mobilization is vital for developing a comprehensive strategy and accelerating efforts.



Figure 2: Shared Benefits of Sustainable Programs



Putting it into practice

A poignant example of cross-business action-taking comes from a leading global agribusiness company and Regrow partner. The company developed an innovative regenerative farming program that incentivizes regenerative farming and rewards farmers for emissions reduction and abatement.

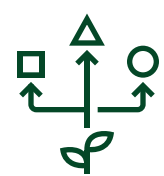
The program, which has expanded significantly in the last three years to include multiple crops across many countries, has helped the agribusiness company accelerate progress toward its stated scope 3 emissions goals and expand business across its supply chain

partners, and has added a stabilizing factor to the commodities across its supply sheds (regeneratively-produced crops are more resilient, which makes the supply chain more resilient and less prone to disruption and pricing volatility).

With this program alone, the company is able to satisfy goals across sustainability, procurement and risk management departments, while building trust both upstream and downstream in its supply chain and offering new products to farmers and CPG partners.

How to work with partners for impact and scale

Forming strong partnerships is key in building effective company-wide climate programs. A strong network of partners makes your climate program more resilient by de-risking it and accelerates your path to achieving your climate goals.



Build trust

Build trust by understanding the needs and challenges of partners across and along your supply chain. Then, structure a partnership as a win-win-win model for your business, your partners and producers.



Enable producers

Ensure producers are enabled to adopt sustainable practices through technical education, support, and incentives. It's particularly important to incentivize producers for ecosystem services in a way that enables them to reduce the financial risk of practice adoption.



Act effectively

Unlock the impact of collaboration with science and technology. This includes scope 3 visibility tools like Sustainability Insights and a digital MRV that help plan and execute action at both supply shed and farm levels respectively.

Getting started: turn analysis into action

Our analysis and experience working with leading CPG companies and agribusinesses have shed light on the four most important elements in transforming food supply chains, from a business perspective.

To empower emissions reduction across the organization as a holistic risk mitigation strategy, leaders should:

- 1. Map the Impact Gap:** measure current emissions, with a focus on accurate, dynamic information and a holistic understanding of emission sources
- 2. Develop a plan to close the Impact Gap:** use this analysis to develop high-impact, scalable programs to close the Impact Gap and build resilience quicker
- 3. Empower change through internal alignment:** identify common goals across business units and leverage those goals to drive growth and risk mitigation across the organization
- 4. Work with partners:** find the best way to engage partners in system-wide resilience, and you'll find yourself in an industry that's changing for the better.





The next generation of business transformation

As we confront the ongoing challenges posed by climate change, building resilience in our food system has never been more critical. Climate change is a fundamental business issue that demands immediate and innovative solutions, led by business leaders and carried across the organization. The future of our businesses — from farmers to global CPG companies — depends on our collective ability to respond effectively and sustainably to these environmental challenges.

By prioritizing this work and enabling progress across the entire business, leaders can build resilience in agriculture supply chains and future-proof both the business and the industry.

Learn more about Agriculture Resilience and how to empower it at resilience.regrow.ag. Interested in operationalizing these efforts? Explore Regrow's Ag Resilience Platform, including Regrow's ag [scope 3 emissions tracking and management solution](#) and our digital [MRV](#).

Glossary

Abatement potential: the amount of greenhouse gas emissions that can be reduced through technology or alternative practice adoption. In the agriculture industry, abatement potential refers to the GHG emissions that can be reduced by adopting climate-smart farming practices, through reduced emissions and carbon sequestration.

Agriculture Resilience: A growing movement across the agriculture supply chain that can deliver both financial and climate stability to our food system. Agriculture Resilience is a social, economic, environmental and financial transformation that benefits growers, organizations, businesses and consumers globally. It is a goal state for our industry, which can only be reached if we work together to build a more stable, self-sustaining food system.

Impact Gap: The Impact Gap is the delta between a company's resilience-oriented goals (including emissions reduction goals, Net Zero goals, long-term climate commitments, and/or supply chain stability) and its current trajectory toward those goals.

Scope 3 emissions: GHG emissions that result from activities that an organization indirectly affects in its value chain, but that the organization does not own or control. These emissions can include both upstream and downstream emissions. (Source: [EPA](#))

Supply shed: A group of suppliers in a specific market or geography that offer similar goods and services that are related to a company's value chain, as defined by [Value Change Initiative](#).



Learn more about
Agriculture Resilience
at resilience.regrow.ag

