

2021

Nature- Positive Business Solutions

PERSPECTIVES IN THE FOOD
AND BEVERAGE SECTOR
IN NORTH AMERICA



World Environment Center

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NATURE-POSITIVE BUSINESS SOLUTIONS

Perspectives in the Food and Beverage Sector in North America

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Overview

“Nature-positive business” is imperative to address climate change, conserve biodiversity, and advance sustainable development. Important efforts are underway to define and promote the concept, such as the Science Based Targets for Nature Initiative, the Task Force on Nature-Related Financial Disclosure, and others.

The United Nations Environment Programme (UNEP), through its North America Office, and the World Environment Center (WEC) are seeking insights from companies and organizations about their experiences with nature-positive business. What has been successful? What are the challenges? What policy and market signals could accelerate progress?

In 2020, UNEP, WEC, and MIT-Solve convened a virtual consultation with private sector leaders to provide input to the *Fifth United Nations Environment Assembly* (UNEA-5) and its theme of *Strengthening Actions for Nature to Achieve the Sustainable Development Goals*. The consultation revealed strong interest and potential to scale nature-based solutions, but also significant barriers and challenges.

This report assesses nature-based solutions in the food & beverage sector, which has been a leader in embracing nature-based solutions. Through in-depth interviews with over 20 executives regarding their operations and value chains in Canada and the U.S., WEC assessed the opportunities and constraints for companies in adopting nature-positive business solutions in the food & beverage sector.

Interviews were conducted between May and October 2021 with executives and sustainability professionals from major segments of the food & beverage sector, including agricultural inputs (seeds & chemicals), agricultural production, commodity trading, food & beverage manufacturing, retail, finance, consulting, and nonprofit organizations. The individuals interviewed and the questions asked are listed in appendices to this report.

This report presents the findings from those interviews, with some important caveats:

- **The report is based on the perspectives of a small number of experts in the food and beverage sector. It is not a comprehensive study of the subject.**
- **Interviews were conducted in confidence with an assurance that responses were not for attribution. This was to encourage honest discussion of challenges and opportunities. Statements in quotes are anonymized to respect this assurance.**
- **Some findings may challenge conventional wisdom in the sustainability field. The goal is to provide a candid assessment of how nature-based solutions are incorporated in business models, from the perspective of its practitioners.**
- **The findings reflect the views and opinions expressed in the interviews as faithfully as possible. They do not necessarily reflect the positions of WEC or UNEP.**

Nature-Positive Business Priorities

“What nature-positive solutions are most applicable to your business?” The answer to this question depended on what ecosystem services were most important to the company in question. When asked to distinguish between investing in nature and eliminating harm, most companies interviewed began with eliminating harm, such as reducing greenhouse gas emissions, using natural resources more efficiently, and eliminating pollution and runoff. While less frequently cited, investments in nature included restoring soil health, conserving field margins on farms, and financing reforestation and watershed conservation.

Regenerative agriculture was a common priority among interviewees. According to Project Drawdown “regenerative agriculture has at its core the intention to improve the health of soil or to restore highly degraded soil, which symbiotically enhances the quality of water, vegetation and land-productivity.”¹ Studies suggest that regenerative agriculture can reduce or sequester over 20 gigatons of CO₂-e by 2050² or even as much as 100% of current annual CO₂ emissions.³ As a result, the food and beverage sector is paying attention to the potential of regenerative practices to improve the environmental footprint of the agricultural system.

Carbon

Reducing greenhouse gas emissions in agriculture to meet corporate climate goals was the most common nature-positive business priority identified by interviewees. Corporate action is being driven primarily by voluntary corporate commitments—including Net-Zero Goals and Science-Based Targets—which are growing year to year. Reducing emissions from land use, sequestering carbon, and switching to regenerative agricultural practices on farms are a growing focus of companies with agricultural supply chains.

“While co-benefits are amazing, like soil, watershed, and wildlife health, the core focus is on carbon reduction,” said one respondent.

Companies are focused on emissions reduction and carbon sequestration on farms in order to tackle Scope 3 emissions, which result from activities within the value chain that are not owned or controlled directly by corporate entities. Global food & beverage companies need to adapt to different geographies with a strategy that addresses a variety of land-use challenges in their supply chains, including reducing deforestation as well as promoting agriculture practices that reduce emissions and sequester carbon on-farm.

There is particular optimism that regenerative agriculture practices that improve soil health can sequester carbon in soils while improving productivity and helping farms become more resilient to extreme weather. Growing voluntary carbon markets and increased corporate commitments are leading to new business

1 Project Drawdown. (2020). *Regenerative Annual Cropping*. Available online at: <https://www.drawdown.org/solutions/regenerative-annual-cropping>

2 Ibid.

3 Rodale Institute. (2014). *Regenerative Organic Agriculture And Climate Change: A Down-To-Earth Solution To Global Warming*. Kutztown, PA: Rodale Institute.

models focusing on carbon sequestration in agriculture. Still, the science of soil carbon is complex and there aren't widely accepted metrics yet to support crediting of regenerative agriculture projects against corporate emissions targets. It remains to be seen how farmers will benefit from voluntary carbon commitments.

Water

“Carbon is a splashy headline, but we are nothing without water.” Water was the second highest nature-positive business priority across the food and beverage companies interviewed. For companies with a high dependence on agricultural inputs, water is a major focus of nature-positive business practices. For beverage companies, water is a major driver of business value, and as such, water stewardship has been at the core of sustainability work for over a decade.

Improving internal water efficiency by reducing water use in operating facilities has been a starting point for water stewardship efforts, but companies realize that they cannot address water challenges by working only inside their fence lines.

Beverage companies have been at the forefront of becoming “water neutral” and more recently “water positive” by taking a landscape perspective and investing in the restoration of watersheds where they operate. These investments include reforestation, habitat conservation, and sustainable agriculture programs.

Interviewees noted an uptick in interest to link water stewardship to corporate climate action through sustainable agriculture, nature-based climate solutions, and climate resilience. Examples include improving soil health and establishing field margins on farms as well as investments in reforestation and habitat conservation in surrounding watersheds. Interviewees noted that regenerative practices have multiple ecological benefits beyond carbon, such as **“a 500 percent increase in water infiltration and improvements in water quality and water use.”**

Biodiversity

The third most common nature-based business priority among the food and beverage executives interviewed was biodiversity. Biodiversity is a lagging concern, receiving far less funding and attention than carbon or water. Over the last few years, in the run-up to the 2021 U.N. Biodiversity Conference, the issue has begun to receive more corporate attention.

“The biggest actionable biodiversity need identified is to stop and reverse habitat conversion.” Unfortunately, this goal is more complex for companies to measure than carbon or water, and very few companies have integrated natural capital into their financial accounting. Though there are ongoing efforts to measure biodiversity and soil health at scale, there remains a concern over mapping impacts and dependencies because there could be a first mover disadvantage that might affect a company's reputation or share price. As a result, companies are not sure how to proceed on biodiversity commitments. Successful biodiversity programs are often linked to other initiatives when companies can highlight biodiversity outcomes in reporting on other environmental or social goals.

Other Concerns

Beyond carbon, water, and biodiversity, other nature-based business priorities were identified, which were unique to individual stakeholders. These include pollinators, antibiotics in the food supply, and the link to people's diets. Pollinator efforts are generally focused on conserving habitat. Food and beverage companies are working with multi-stakeholder groups to address antibiotics in the food system as it drives microbial resistance. A broader societal question, in the mind of some respondents, is how to balance people's diets with the concept of planetary boundaries. How can the link be made between what we eat and the resources necessary to provide for that diet?

Most companies are focused on climate change and not allocating resources to measure and capture other benefits of nature. In the words of one interviewee, anything other than carbon is **“not the fire to put out this year.”**

Key Insights

- Carbon and water are the biggest nature-based drivers of business value and concern.
- Biodiversity is a rising concern, but companies are struggling with actions and goals.
- Voluntary commitments drive much of the interest and work, especially on carbon.

Valuing Nature⁴

None of the companies interviewed have integrated the value of ecosystem services into their financial accounting. **“Not yet. Looking into it,”** was a common response. It is not easy to monetize something with no commercial market. In the language of economics, nature remains an “externality.”

As noted above, voluntary corporate commitments are the primary drivers for nature-positive business practices, often in response to demands from customers or investors. Due to the voluntary nature of these commitments, corporate leadership becomes a critical aspect of how and whether ecological services are valued.

Markets for Ecological Services

In some of companies interviewed, leaders have driven nature-based business solutions by establishing ambitious sustainability goals with clear metrics, changing capital allocation procedures to encourage nature-positive outcomes, and linking senior leaders’ compensation to sustainability performance. Additionally, strong leadership can mandate an internal carbon price or true water value that can be used to direct investment. For the value of nature to be systematically integrated in business decisions, however, markets will need to start paying for the value of ecosystem services.

Some companies have put a value on carbon sequestration and water replenishment by financing regenerative agricultural practices and watershed conservation in their supply chains. Agriculture has the largest impact in the food and beverage value chain, accounting for some 2/3 of carbon emissions and 90 percent of water usage, according to one interviewee.

For nature-based solutions to scale, markets will need to reward agricultural producers for their up-front investments. Switching to regenerative farming practices, one of the most promising nature-based solutions, **“is a risk in hope of a 5-year payoff,”** in the words of one interviewee. Farmers operate at slim margins; supply chains cannot impose these costs solely on farmers and expect results at scale.

Pricing

For the value of nature to be captured across the entire sector, it must be incorporated in the price of food and beverage products to the end consumer. This is especially challenging in commodity markets, where it is difficult to distinguish nature-positive practices and pass their costs along to the customer. Some companies interviewed are tackling this challenge by pursuing greater vertical integration in select value chains so that they can invest in undercapitalized producers and share higher margins with them when they adopt nature-positive business practices that enhance enterprise value.

Interviewees agreed that ecological value should be integrated into the true cost and value of the product and not treated as an add-on or subsidy. Only then can companies’ view of nature shift from “we need to avoid risk” to “we can capture value.” Ecological services need to be relevant to the customer, easily understood, and distinctive. Companies will invest in ecosystem services when they offer superior value and can help strengthen a company’s brand proposition. As one interviewee put it, **“sustainability doesn’t sell; superior value sells.”**

⁴ Some object to the idea of assigning economic value to nature—pointing out that nature’s true value exceeds what people might pay for it. However, the nature-based business models assessed in this report depend on an economic valuation of the ecosystem services that they deliver.

Beyond Pricing

There are creative efforts to value nature in the food and beverage supply chain that do not rely solely on price. Some companies are setting up long-term contracts with producers to de-risk their up-front investments. Companies can socialize the cost of soil-enhancing crop rotation by purchasing all the crops in rotation or partnering with another buyer who can take some of the products. Another approach is to include requirements for nature-positive practices into purchasing criteria, brand standards, or the process to become an approved supplier. In lieu of trading or selling water, companies can contract suppliers who grow **“the right things in the right places at right time,”** not “saving” water but rather optimizing its use in a particular watershed.

Key Insights

- Ecological value is hard to capture.
- Although “ecosystem services have been discussed forever,” their value has not been incorporated into the price of mainstream food and beverage products.
- Some companies are pursuing creative strategies to reward agricultural producers and finance their transition to nature-positive practices.

Metrics and Measurement

Finding useful, non-financial metrics is a challenge in corporate sustainability. This is especially true for nature-based business solutions. Key areas for measurement mentioned by interviewees included greenhouse gas emissions, soil carbon, soil erosion, water quality, energy use, water use, and biodiversity. There are challenges in finding useful metrics for all of these.

Need to Invest in Science

There were multiple calls for more investment in measurement tools, capability, and methodologies. Soil science is a key area of need. Measuring soil carbon sequestration and soil quality is very difficult, especially for the wide variety of farm types and biomes. Key concepts like soil quality are not well defined. There is not a standard definition of what regenerative farming is, and it is difficult to measure the impacts of regenerative practices. Additionally, soil improvement takes years and chances of failure are high. Therefore, calculating greenhouse gas reductions from regenerative agriculture is fraught with challenges.

Certifications

Interviewees noted that existing agricultural certification programs are inadequate to drive nature-based business practices, especially for carbon sequestration. Regenerative farming practices such as no-till, cover crops, crop rotation, and integration of livestock have been shown to sequester carbon, and the evidence is powerful enough to mobilize business investment. There is now a push to quantify carbon sequestration, soil health, and water infiltration more systematically, however there is not a “one size fits all” methodology.

There are still questions in the underlying science behind measurement tools and methodologies. While there is no accepted certification standard for regenerative agriculture yet, a number of promising efforts are underway. Meanwhile, companies continue to rely on existing standards that do not require regenerative practices, such as organic, RSPO, and others to ensure consumer acceptance.

On-Farm Metrics

Interviewees noted that the most critical metrics for farmers are yield and income, not greenhouse gas emissions or other environmental metrics. Many metrics important to business sustainability initiatives and corporate supply chains do not add direct value to the farmer. The key data that corporate entities and reporting agencies are demanding must be collected by farmers, but this extra work placed on the farmers is not balanced with extra resources or incentives. The people implementing the activities are not given resources for monitoring and measurement, hence the need for more investment in tools and capabilities.

Normalization

A subset of stakeholders are convinced that there is sufficient data and measurement capability to catalyze nature-based solutions. The industry does not need to invest in measurement, but rather in normalization of metrics to create a pooling factor. Companies can sometimes view each action as separate and unique on farmlands and struggle with common or holistic metrics. A challenge will always be that **“bad actors do not want to share data.”**

Other Approaches

Beyond the on-farm ecological measurements, some stakeholders are concerned about habitat conversion. Project and program level success can be measured by uptake and adoption rates. There is also a push for social metrics such as how many young people remain on the farm.

Key Insights

- The metrics needed to drive nature-positive business practices are disconnected from value and action on-farm.
- Standardization and normalization of metrics is needed.
- There is a need to make the gathering and utilization of farm ecosystem data easier, cheaper, and more relevant to the people who are tasked with gathering the data.

Standards

Many businesses are “waiting for standards” while simultaneously developing their own standard within their supply chain. Right now, existing standards and methodologies are not widely adopted. Most companies using standards are utilizing them to guide internal action. In the words of one interviewee, **“Don’t need to debate methodologies. Need to start doing. Need common ground for how to measure.”**

Standards Mentioned

There is excitement and anticipation for the forthcoming guidance on Science Based Targets for Nature. Most companies interviewed have announced or are developing Science Based Targets for Climate. **“Companies who are serious about science-based targets are a little more sophisticated in measuring total impact,”** said one interviewee.

Interviewees also highlighted other initiatives focusing on standards, certification, and reporting, including the Natural Capital Coalition, the Task Force on Nature Related Financial Disclosures, the Sustainability Accounting Standards Board, the Carbon Disclosure Project, Verra, and the Gold Standard.

Sourcing

Standards and certifications do come into play when coming up with a sourcing strategy. Particularly in large or complex supply chains, it is hard to validate what suppliers say they are doing when so many sourcing strategies fall back on certification programs. Many of these programs are specific to a single value chain input such as sugar or beef and rarely cover the entire supply chain. Water stewardship programs are highly integrated with supply chain standards and many companies choose to partner with NGOs to validate the certifications. The range of certifications is as complex as the value chain itself.

Farmer Perspectives

Ultimately, growers do not want the added cost burden of implementing standards. Some corporate entities, particularly multinationals will cover some of the cost of standards measurement, but most are too focused on cost cutting internally to consider this a realistic option.

Key Insights

- Companies utilize standards mostly for reporting or to guide internal actions in their own value chain.
- Growers see standards as an extra cost burden.

Barriers and Challenges On-Farm

Most nature-positive business practices in the food and beverage sector come down to farm practices and valuation. There are real crises in farming. Prices are volatile and margins are thin. Extreme weather is hurting yields. Soil is retaining less water, nutrient densities are falling, pollinators are disappearing, and younger generations often do not want to step into the work. As a result, a major theme of the consultations was how to partner with farmers and how to de-risk nature-positive farming.

Economic Challenges

On-farm economic issues are the biggest barrier to adoption of regenerative and other nature positive practices. Switching to regenerative practices can be expensive and not guaranteed to improve yield. The only functioning market for farmers is the crop itself. Aside from public subsidies and small commercial pilots, farmers can't monetize the ecological or social value of their farms. Even commodity markets are skewed—if farmers convert row crops back to grasslands for livestock grazing, they are not able to get crop insurance for that field.

Historically, corporate entities in the agriculture value chain have asked farmers to adopt more sustainable practices without incentives. It is unlikely that a food manufacturer, with a procurement department laser focused on lowering costs and ensuring supply sustainability, will take the lead in figuring out how to compensate farmers for regenerative conversion.

Nascent markets for carbon and other ecosystem services could be a way to overcome this risk. But it is hard for soil carbon sequestration to compete in carbon markets at scale without clear, science-based standards. And there is currently no large-scale market for biodiversity or other ecosystem services.

Capital investment is essential. It is estimated that \$700 billion is required to transition U.S. farmland to regenerative practices. Interviewees are experimenting with creative financing strategies in both conventional farm lending and boutique start-ups. Can corporate entities share risks and benefits with farmers? How can the financial risks be shared across the value chain? Who takes the risk of dealing with Mother Nature? Right now, the costs and the risks are being placed squarely on the farmer, hindering the transition.

Time Frames

The seasonality of agricultural economics leaves no patience for the “long game” – short and seasonality pressures dominate farmer concerns. Farmers live harvest to harvest selling into commodity markets with very low margins. Food and beverage companies are beholden to quarterly earnings. The underlying financial pressures do not allow for either stakeholder to finance a transition to regenerative farming, which can take five years or even longer.

Farmer Culture

Ingrained behaviors and farmer culture also provide an important, if not insurmountable challenge. The attitude of “my parents and neighbors always did it this way” is hard to overcome. Farmers many times care more about boosting yield than optimizing farm economics or reducing environmental impact. A switch to regenerative practices requires examining and experimenting with the full range of inputs, outputs, practices, and costs. Some interviewees said that it can be difficult for value chain partners to support such efforts in a culture where it is “not polite” to ask about inputs and costs, and as a result, there is not a lot of transparency into on-farm operations.

Diversity is also a key issue. Many farmers of color, including African-Americans, Latinos, and Native Americans, have long farmed regeneratively because they lack access to capital to pursue more input-intensive methods. Advocates for regenerative farming can learn from these under-represented farm communities and their longstanding practices.

Key Insights

- Farmers have limited capacity to make expensive, complex, and risky changes in farm operations on their own.
- Until costs and risks of the transition to nature-positive farming practices are shared across the value chain, progress will be slow.
- Food and beverage companies can do more to create incentives and assistance programs that help farmers adopt nature-positive farming practices.

Other Barriers & Challenges

Terminology

A key roadblock to adopting standards is the lack of definition for nature positive practices. Ecological services and nature-based solutions have long been the domain of academia and within the business world there is confusion regarding the concepts. There is no standard definition for regenerative agriculture and as a result, measuring regenerative work is difficult with existing tools and calculators. Different practices such as no till, cover crops, and even conservation can be used interchangeably with regenerative agriculture, furthering confusion in the marketplace. There is progress happening through on-the-ground projects and programs, but it remains a slow-moving process. There is no umbrella or overarching group for regenerative agriculture, promoting a “go it alone” mentality that most companies are currently taking. Simultaneously, demonstrating yield improvements from new practices over time is “tricky” due in part to very limited research in commercial farm settings

In addition to the lack of definition around regenerative agriculture, there is still confusion on how to define and measure soil quality and soil health. Likewise, until there are a set of standards to measure biodiversity impacts and an accompanying valuation framework, corporations will not make commitments. Given the complexity and global nature of supply chains, a multi-stakeholder approach is difficult.

Academia, natural capital accounting, and frameworks are not moving as fast as the business conversations and there is a clear need to get conversations moving at the same pace. There is a clear need for common ground on how to define and measure these critical concepts.

Corporate Disruption

Individuals play an outsized role in moving nature-positive programs forward. A strong leader who understands the sustainability challenge can push for change all the way across a supply chain to growers. But this means that personnel changes, mergers, and other corporate disruption can have an outsized impact on nature-positive initiatives. For example, whole partnerships and programs have been put on hold due to personnel changes where there is no system to continue these efforts forward. Mergers disable action due to priority and strategy shifts with new leadership; budget cycles and increasing chaos in the markets can inhibit and even halt nature-positive business development.

Value Chain

The modern food and beverage value chain has many components: seeds and chemical inputs, on-farm production, commodity trading, transportation and logistics, consumer packaged goods, and retail. This can lead to adversarial interactions if one portion of the chain makes money from nature-positive initiatives while others do not.

Ultimately, there needs to be a willingness to pay more to incentivize and finance the transition, but that has not materialized. Interviewees report that in side-by-side tests, most consumers continue to choose the cheaper option over the more sustainable one. Nature-positive growing practices, beyond organic, are difficult to communicate to consumers, which makes it difficult to charge a premium price. This is occurring within a market context where consumers are already getting **“too many certifications thrown at them.”**

Without a way to value more nature-positive products and share their extra costs along the value chain, food and beverage products continue to be disconnected from on-farm economics.

Scale

The size of the world’s food & beverage sector makes it challenging to pursue nature-based solutions at a scale and speed necessary to make a material difference on climate, water, biodiversity and other ecological outcomes. **“There is not enough nature to offset the carbon emissions of world’s fossil products,”** as one interviewee put it.

Projects that employ nature-based solutions are often small pilots that don’t scale rapidly. Both the revenues and the ecological benefits can be too small for companies and banks who prefer to invest in larger projects. **“The gap between aspiration and execution is huge,”** according to one interviewee. Some companies are addressing this challenge by pursuing vertical integration in target commodities where they can incentivize and capitalize producers to pursue nature-positive practices on a large scale.

Soil Carbon Challenges

On-farm carbon sequestration is the most direct link to corporate emissions commitments and on-farm practices, but soil organic carbon is not easy to measure. While carbon that is emitted into the atmosphere has a global impact, carbon that is sequestered into soils is localized.

Soil metrics are valid for small areas, sometimes down to adjacent acres. Furthermore, companies report emissions on year-to-year basis, but soil carbon projects take five years minimum for changes in soil composition to become noticed, with real benefits realized only after ten years. There is a major disconnect in timing.

Nature-Positive Business Case

A nature-positive business model requires different approaches to the business, suppliers, and customers, challenging conventional business practices. Most ecosystem services are not valued and therefore difficult to incorporate into financial projections. Spending money on nature-based solutions becomes challenging to justify as an attractive investment. The necessary mindset shift, where conserving nature is no longer just a cost, but rather an investment opportunity is difficult in organizations where shareholders demand predictable returns in the near term.

How does a company make the business case internally when there is not a direct return on investment? **“It is a constant struggle to figure out the responsibility of downstream companies who are far removed from the farm,”** according to one interviewee. Consumers do not want to pay more for their food. Products are not specialized or niche enough to justify premiums. Where does the investment come from if not through consumer behavior and buying preferences?

While a carbon market exists, farmers are not getting paid for carbon sequestration at scale. Water usage is considered a high-level risk to the value chain rather than an immediate concern to an individual business. Water quality, biodiversity, and other ecosystem services are considered externalities that go beyond a company's core business model.

Beyond public sustainability commitments, what is the business case for companies? Patient money is important for financing the transition to regenerative agriculture, but it remains difficult for traditional investors and financial professionals to make the business case when nature positive practices are expensive, the benefits are difficult to recognize, and results are hard to monitor.

Key Insights

- There is no standard definition for key concepts such as regenerative agriculture and soil health, prompting confusion and difficulty in determining effective practices.
- Individuals play an outsized role in advancing programs and practices; changes within organizations can disrupt progress.
- The wide-reaching value chain of the food and beverage sector makes cost and profit sharing complicated and often disconnected from farmer needs.
- Projects that employ nature-based solutions often do not scale rapidly enough for companies who prefer to invest in large projects.
- Carbon sequestration in farm soils is difficult to track given its localized nature that takes years to materialize.
- Investing in nature-positive business requires a new approach that includes monetizing ecosystem services into financial projections.

Conclusion

For the food and beverage industry to adopt more nature positive business models, ecosystem services and nature-positive practices must be economically valued and financially rewarded. Farmers are more likely to produce more sustainably if they are paid for it. Farms that are managed more sustainably or protect natural habitats should be rewarded. Food and beverage companies need to understand farmer economics and tailor programs to make them more useful to farmers. Value from ecosystem services must flow to farmers doing the work; they cannot be expected to take on the risk for a system-wide transition alone. The government can play a role with the right insurance systems linked to nature outcomes. Farm policies, including crop subsidies and insurance programs, can include ecological outcomes, starting with carbon and including other ecological services. A multi-stakeholder “whole of value chain” approach is essential to success. All food and beverage stakeholders must play a part in de-risking and financing the transition to nature positive agriculture by sharing the multi-year transition risk as well as the rewards.

There is a clear need for clarity on the science, terminology, and metrics that underpin nature-based solutions. Carbon and water are the two biggest nature-based drivers of business value and concern and biodiversity is on companies’ radar as they attempt to determine what meaningful action can and should be taken.

Nature-based solutions with the most business value are those that can be integrated into larger, more tangible business opportunities, though public sustainability commitments are driving short-term action, especially around carbon. Companies need to move beyond a focus on risk management to a focus on the investments needed for a transition to nature positive business.

Addressing on-farm economic challenges and providing clarity in what nature-based solutions entail provide the biggest opportunities to advance nature positive business models in the food and beverage industry.

Key Insights

- Farmers need to be at the center of the transition to nature positive business. More needs to be done to help them mitigate the financial and operational risks necessary to make changes.
- Nature-positive or regenerative practices will be adopted more quickly if the food and beverage value chain pay for the outcome.
- Supply chains are not yet transparent enough for consumers to be knowledgeable about practices that are nature-positive or regenerative.
- Multi-stakeholder, whole-value-chain approaches are needed, for much of the change needed is systemic.

Appendix 1: Executives Interviewed

Gabriela Burian	Global Partnerships / Multi-Stakeholder Platform Lead	Bayer
Joan Salwen	CEO	Blue Ocean Barns
Matthew Rothe	Co-Founder	Blue Ocean Barns
Christine Black	Senior Director, Global Government & Stakeholder Relations	Coca-Cola
Ben Jordan	Senior Director, Environmental Policy	Coca-Cola
Joe Maquire	Senior Director, Global Sustainability, Procurement	Coca-Cola
Katya Hantel	Senior Director, Sustainability	ConAgra Brands
Sheri Flies	Vice President for Sustainability	Costco
Tim Wahlquist	Global Director of Sustainable Sourcing	Costco
Eric Soubeiran	Chief Sustainability Officer	Danone
Chris Adamo	VP Government Affairs, Policy, and Partnerships	Danone
Braulio Pikman	Expert Advisor	ERM
Rod Snyder	President	Field to Market
Matt Plitch	Founder	Neutral
Jason Scott	Principal	RRG
Robyn O'Brien	Co-Founder	RePlant Capital
Cindy Gravendeel	Business & Communications Manager, Sustainability	Rabobank
Michael Rinaldi	Vice President, Sustainable Business Development	Rabobank
Bas Ruter	Director of Sustainability & Climate	Rabobank
Matthijs Mondria	Independent Advisor	True-Code
Petra Laux	Global Head Business Sustainability Crop Protection	Syngenta
Dominic Widmer	Business Sustainability Growth Strategies Lead	Syngenta
Margaret O'Gorman	President	Wildlife Habitat Council
Jon Hixson	Chief Sustainability Officer	YUM Brands

Appendix 2: Questions Asked

- What nature-positive business models and practices are most applicable to your company and your value chain? Please consider both investments in “natural capital” (e.g. watershed protection, wetland conservation, soil health improvement, etc.) and elimination of harm to natural systems (e.g. water-use efficiency, pollution prevention, etc.).
- What nature-based solutions has your company attempted? What are the results for your business, the environment, and affected communities?
- What internal business processes or incentives do you utilize for adoption of nature-based solutions in your business units? In your value chain?
- Are you able to value ecological services in your business? If so, which ones, where, and how? What standards or frameworks are you employing to establish their value? If not, what constraints do you face in attempting to value relevant ecological services?
- Has your company been able to internalize environmental benefits and costs to the business and to affected communities? If so, how have you done this? What methods and standards have you employed? If not, what constraints do you face?
- What metrics do you apply to measure success or progress in nature-positive business models? What metrics are missing that you would like to have?
- What barriers have you encountered in efforts to implement nature-based solutions (regulatory, financial, technical, cultural, etc.)? What changes would you recommend in public policy frameworks or financial markets to create more support for nature-based solutions?
- What stakeholders are most critical to engage for deployment of nature-based solutions?
- What is your experience with collaborative, multi-stakeholder projects to implement nature-based solutions? Can you share any case studies of success or failure?

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