

Profits and Sustainability: How ESG Strategies Can Shape the Future of Profitability and Sustainability in Agriculture

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Abstract

Agribusiness is the large-scale intersection between farming, processing, and distributing food worldwide, making it one of the most important – and scrutinized – markets globally. In recent years, the industry has faced mounting pressure to align with environmental, social, and governance (ESG) standards. These standards are pillars designed to measure a company's impact on the planet and society, aiming to go beyond just profitability or financial performance. As agriculture remains directly tied to environmental health, labor conditions, and food security around the globe, how effective ESG frameworks operate in this sector has become increasingly consequential. This project aims to answer the question: *How can ESG strategies shape the future of Agriculture?* This question is addressed by first examining how ESG frameworks are structured and measured within agribusiness, then analyzing the challenges and limitations when applying ESG metrics in agricultural systems, and finally evaluating how ESG strategies influence profitability, risk reduction, and competitive positioning – across larger corporations as well as smaller farms.

In order to answer these research questions, various sources were used, including academic literature and industry reports, collected from Google Scholar, reputable online news outlets, governmental reports, and the web. This research is crucial because the long-term sustainability of agribusinesses directly affect environmental sustainability, economic resilience, and global security; if these farms fail, billions of people around the world are impacted for the worse. At the conclusion of this research, it becomes evident that while ESG systems may have their imperfections and will continue to change, strategically implementing ESG practices can simultaneously support sustainability goals and long-term profitability in agriculture.

Keywords:

ESG, Agribusiness, Sustainability, Profitability, RegenerativeAgriculture, ESG Metrics, FoodSecurity

Introduction

ESG standards extend far beyond surface-level assessments of environmental friendliness. While the environmental, social, and governance pillars are intended to promote sustainability and societal wellbeing, effective integrations of these standards can also enhance long term profitability, operational efficiency, and consumer trust. ESG frameworks also encompass a diverse and wide range of possible metrics, each one capturing different dimensions of performance and offering distinct insights into organizational priorities and impacts.

How ESG Strategies Can Shape the Future of Agriculture

In agribusiness, these ESG measures can range from reducing greenhouse gas emissions in farming practices, increasing the transparency in supply chains, to ensuring fair labor treatment for workers. These standards are vital for multiple reasons; They shape how corporations are perceived, and they provide a long-term framework for sustainability in an industry that acts as a direct pipeline between ecosystems and communities worldwide.

ESG scores and ratings are tracked by investors, analysts, and regulatory bodies, aiming to provide valuable insight into how companies are upholding their ESG goals – quantifying how well companies are staying both responsible and accountable. However, ESG scores are not always straightforward, and while they can reveal trends and risks, they are unable to truly capture every nuance of a company's impact. This is partially due to the fact that in the industry of agribusiness, with so many factors at play between climate pressures, ethical responsibilities, and consumer expectations, no ESG metric can be comprehensive of the entire value chain; nevertheless, the scores are still extremely valuable to help consumers, investors, and governments accurately assess credibility and resilience of environmental, social, and governance goals.

Moreover, the balance struck by agribusinesses between sustainability and profit is one of the most critical tensions in modern agribusiness, with companies often aiming to nail both, or at least not give up profits for the sake of profitability. When this equilibrium goes well, agribusinesses are able to thrive, however, when it doesn't, the complete opposite is true. One large-scale example of this – albeit outside of agribusiness – is with Nike and their 2023 sustainability division layoffs. This drew harsh backlash as a result, with the decision damaging Nike's consumer trust and brand credibility during the process(1).

While the company made a bold commitment to reduce their carbon emissions and maintain profits by creating a sustainability division, goals did not go as planned when Nike's sales began to flatline. Executives looked to cut costs, and the sustainability division was an easy sacrifice, resulting in a lay off of about 20% of employees in the sustainability division, with another 10% leaving soon after to find work elsewhere. Nike sales and stock fell greatly later in the year, and in addition, so did their progress and plans to reduce carbon emissions (1).

Companies declaring carbon reduction goals and new sustainability teams followed by lack of action is incredibly prevalent across many industries, and it is often called Greenwashing. Greenwashing is defined as “deceitful marketing that exaggerates a business's current or past practices in order for them to appear more environmentally friendly,” (2). This practice may mislead customers or aid companies in portraying certain metrics in a confusing or even completely incorrect light, resulting in distorted public perception, weakened customer trust, and an obvious lack of accountability. When companies state goals for the planet or society, it's one thing to say it, but another to actually follow through, like with Nike – no company, farm, or agribusiness should be able to hide from ESG scores.

However, having a measure of sustainability accounting in place that investors and regulatory bodies are able to use can also allow for smaller businesses to compete with some of the bigger, industrial farms/agribusinesses on the sustainability front– differentiating themselves not by gross revenue, but by ESG goals, metrics, and accomplishments. One great example of this is Vital Farms, an agribusiness that has been certified and recognized by a variety of different organizations, including becoming a Certified B Corporation since 2015 – achieving a 98.6 overall score across different metrics such as customers, community, workers, environment, and

governance (3). While this is not the only reason for their success, it is a major benefit for Vital Farms as it helps attract customers through ESG transparency and accomplishments.

This paper will dive into the strategies agribusiness can take in achieving ESG goals, some of the challenges in measuring these standards, and how agribusinesses can strike the balance between profitability and sustainability. The first step to understand these environmental, social, and governance pillars in agribusinesses lies in uncovering how ESG programs are created and organized.

Literature Review

ESG Frameworks and how to Quantify ESG Metrics

The purpose and structure of ESG in Agribusiness

Moving into how ESG is structured, it is essential to understand who actually drives it, and how agribusinesses translate their goals into quantifiable metrics.

Stakeholder influence on ESG Design

ESG is constructed and shaped by multiple stakeholder groups, each with their own expectations and incentives. A useful way to visualize this is through an ESG pyramid or stakeholder hierarchy (4).



Figure 1 (author-created image)

Figure 1 shows this 'ESG pyramid' broken down into its most important parts, with the very bottom being the consumers – the Public, Non-Governmental Organizations, activists, and others who demand ethically sourced or sustainable products and which pressure companies to

adopt ESG metrics. The next level contains the Supply chain partners and corporate customers – retailers, food brands, and corporate buyers requiring ESG compliance and visible traceability in their sourcing. Following this level are the investors, financial institutions, and ESG funds. These groups use ESG scores to allocate capital, manage ESG-related risk, and compare firms (5).

Above this are the certifying bodies, standards organizations, and regulators – groups such as the Global Reporting Initiative (GRI), national regulators, or sector-specific rating bodies that set the frameworks and thresholds for disclosure.

Finally, at the top of the pyramid are the Internal People – management, sustainability offices, and boards – which are parties within the firms that decide on and operate towards ESG goals, choose which metrics to adopt, integrate the necessary strategies towards achieving them, and oversee the reporting.

Competing Incentives Across ESG Stakeholder Groups

Since these stakeholders have varied interests, the choice of which metrics to adopt and how to report them is often a negotiation across levels and priorities. For example, investors often care most about risk-return tradeoffs, while non-governmental organizations may care more about environmental outcomes. Moreover, a firm facing pressure from consumers may be most incentivized to portray ESG metrics easily understood and supported by their consumers. Research suggests that the metrics which a firm adopts and how it reports them depends not only on external stakeholder demands (investors, regulators, customers) but also internal strategic considerations, resources, and belief systems (6).

Industry Scrutiny and ESG Disclosure Intensity

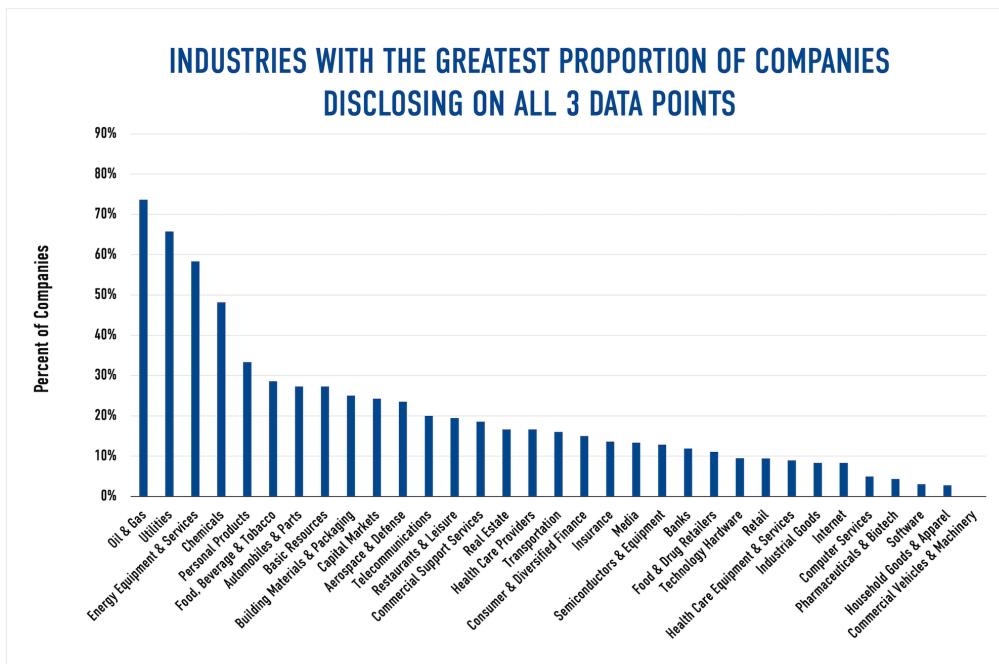


Figure 2 (7) shows the industries with the most amount of reporting on all 3 data points: environmental, social, and governance pillars.

Another large influence on these metrics is the fact that “companies in industries with business models that are environmentally intensive, and which often face public and private scrutiny, have notably higher levels of disclosure on these governance policies” (7). As seen in Figure 2 above, multiple industries where agribusinesses are present, such as Food, Beverage, and Tobacco, are among the top percentages of companies disclosing all three data points (pillars). Part of the ‘public and private scrutiny’ that is being described, particularly in agribusinesses, is the visibility and sensitivity of food production practices – effectively putting these businesses under more scrutiny than other more niche industries that don’t heavily influence entire societies.

Commonly Reported ESG Metrics in Agriculture

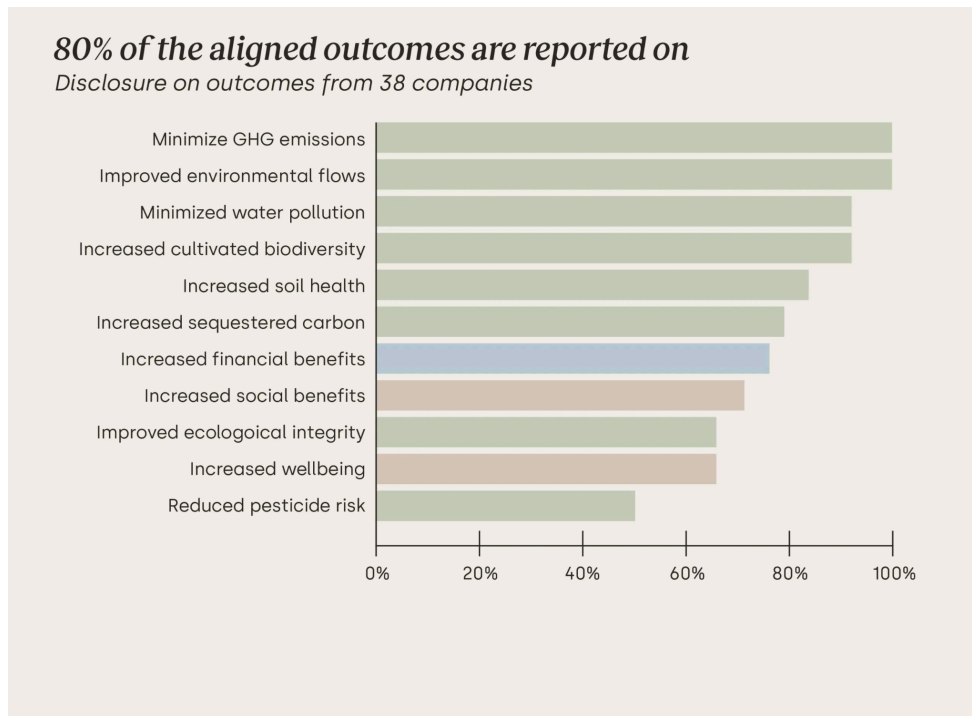


Figure 3 displays some of the most widely reported on metrics from a selection of 38 companies, giving the percentages for how commonly companies utilize them (8)

For agriculture specifically, Figure 3 shows the metrics that are most widely reported on, with environmental metrics like soil carbon, water usage, or pesticide runoff being some of the most popular (8). The reasoning behind why they are so popular lies in the fact that each is absolutely central to the agribusiness model and ecological risk. Other pillars are often still addressed, but without the same prioritization.

Simplicity in Metric Selection

Metrics such as CO₂ emissions and water use are also often selected due to consumer awareness and interest. Metrics which are easy to convey are clearly superior, as seen in the figure above, especially when contrasted with the other graph below (8). These benchmarks

help to more efficiently tell investors and consumers how well companies are upholding their ESG goals. While no single one of these metrics are more telling than the next, ease of understanding is clearly held to a high standard when compared to other forms of metric selection.

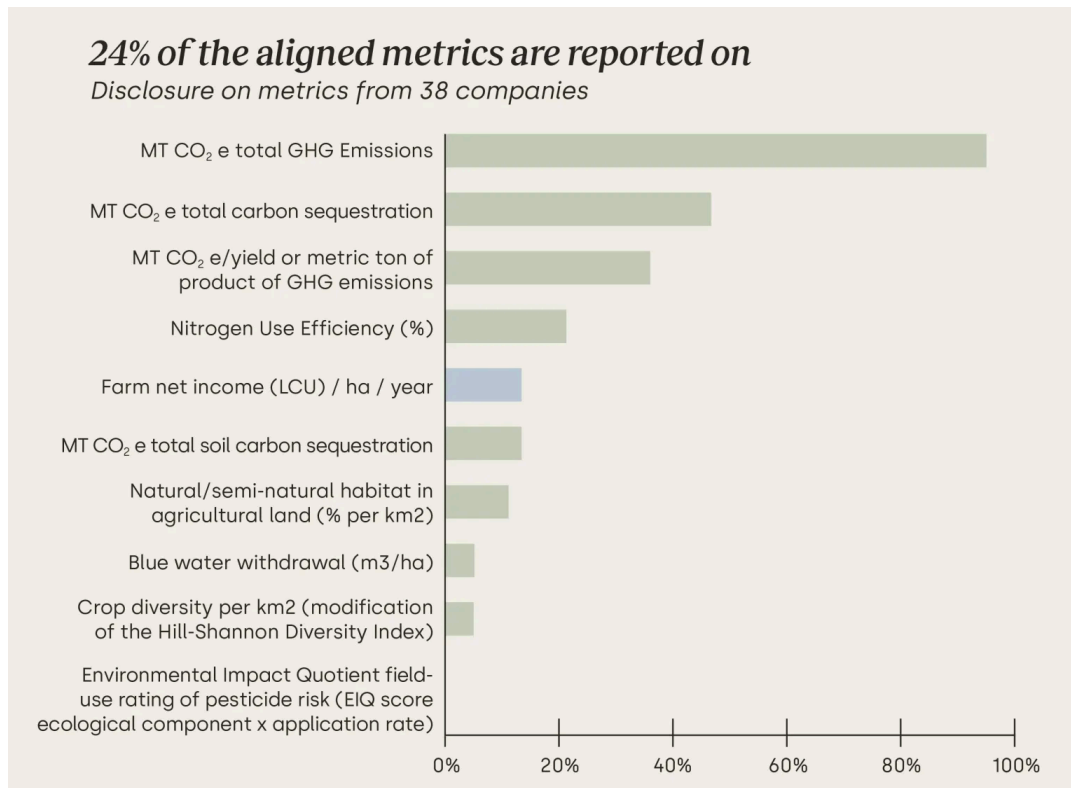


Figure 4 (8) shows the vast difference in the percentage of metrics reported on when comparing more complex metrics with those which are easier to understand, such as in Figure 3.

Data Availability and Measurement Costs

Another deciding factor in choosing metrics is the availability of data or the cost in gathering that data. Some metrics are much easier to maintain, both cost and 'effort' wise, while others like nitrogen use efficiency may take much more specialized measurements, resulting in more time and money being spent (9). Once these metrics are chosen, a firm must decide how they are going to report the data, what standards they must follow, which audiences they must report to, and how often to measure and report.

ESG Reporting Standards and Certifications

One of the most widely used international standards is GRI, which has a sector standard specifically for agriculture and most other industries (10, 11). Some other common audiences/groups for agribusinesses to anchor and disclose their metrics to are the Rainforest Alliance, Fairtrade, and Organic (EU/USDA) (12).

Data Gaps, Lack of Information, and Bias

Despite having all of these certification systems and organizations in place, reporting is rarely perfect. A huge issue lies in data gaps or missing information. This is when firms do not disclose metrics; and moreover, rating models may interpret this silence as underperforming or uncertainty. This missing information can cause ESG ratings of businesses to tank, even if the business is actually upholding their chosen goals. This is why some scholars have proposed the idea of adding another pillar, 'ESGM' scores, with the 'M' ('Missing') pillar being dedicated to information that may not be disclosed but is still happening behind the scenes, "By relying on the data provided by Refinitiv ... ESGM scores strengthen the companies' risk relationship. These new scores could benefit investors and practitioners as ESG exclusion strategies using only ESG scores might exclude assets with a low score solely because of their missing information and not necessarily because of a low ESG merit," (13, 14).

Lack of Standardization Leading to Misrepresentation

Another possible fix is tailoring ESG metrics to stakeholder-specific wants. Some research suggests creating more detailed and comprehensive indicators and then making metrics more standardized across organizations and industries. This would allow for ratings to be more transparent and show all of their tradeoffs and prioritizations. "Despite the impact of sustainable practices on companies, the lack of rules for disclosing ESG indicators means that each organization's report has a different structure," (15). This different structure makes comparing companies difficult and sometimes misleading, as some of the more relevant indicators and metrics may be given substantially more or less attention.

Agribusiness-Specific ESG challenges

Agribusiness introduces some particularly complicated ESG metrics as a result of the nature of the industry – almost everything impacts the environment, people, and society. Some of these complexities include the fact that farms differ so much from one another by soil, climate, land, geographic region, and generally the situation that 'one size fits all' can not be applied. Many farms and agribusinesses are also small and remote, making data gathering financially difficult. For example, many strawberry farms in Florida are not able to benefit from the use of certain metrics because the scope, data availability, and compatibility issues are major barriers in doing farm level assessments (16).

Agribusiness also has a notoriously long value chain – where does one cut it off? At the seed for cattle feed or just at the butchering plant? Deciding these cut-offs for supply chain tracing causes vast differences in calculation of final metrics (17). In addition, when trying to trace bulk agricultural products, tracking becomes incredibly difficult as a result of product blending, supply chain disconnections, and a lack of standardization (18). There can also be many issues with potential 'greenwashing' both accidentally or even on purpose, with so many different factors at play that reported metrics can sometimes mix or even be double counted.

Seasonality Distortion of ESG Metrics

As a result of the seasonality, agribusinesses' performance in one part of the year may be and probably is drastically different from other months, again potentially causing a misrepresentation in their short term metrics. With maize cultivation in Bangladesh, the rates for yields and greenhouse gas emissions vary substantially between seasons, causing ESG metrics to be skewed either for the better or for the worse depending on what time of the year it is – with both situations not being truly indicative or transparent of what is happening (19).

ESG as an Evolving System in Agriculture

Standards with ESG in the agriculture sector are still evolving as it is a fairly new relationship, and what is considered the 'best practice' or 'best metric' can change over the coming years (20). Learning how ESG is structured and actually quantified lays the groundwork for being able to understand how it is applied in businesses. For this essay specifically, how agribusinesses can achieve ESG goals – and the importance of the strategies used – is analyzed.

ESG Frameworks and How to Quantify ESG Metrics

Having now established how ESG frameworks are structured and quantified within agribusiness, the focus now shifts away from the theoretical and into practice. The following section examines how these frameworks translate into decision making, highlighting how agribusinesses implement ESG strategies and navigate the tradeoffs required to achieve strong outcomes across varying scales of operation.

ESG in Action

While ESG frameworks guide the measurement of sustainability, ESG's deepest impact becomes most visible when examining how agribusinesses apply these ESG strategies in practice. Across the sector, both large corporations and small farms have demonstrated that ESG strategies can cut short-term costs and strengthen long-term profitability, but this can come with tradeoffs and challenges (21). Evaluating case studies across these different scales show how ESG-driven decisions are able to balance environmental, social, and governance impacts with profits – reshaping consumer trust, improving overall efficiency, and creating long-lasting benefits.

Corporate-Scale ESG Commitments

Major agribusiness corporations such as Nestle, Unilever, and Danone have increasingly tied their long-term growth strategies to sustainable commitments (22, 23 & 24). Nestle has focused specifically on addressing climate change and building regenerative food systems, while also pledging to reduce greenhouse gas emissions by 50% by 2030, as well as sourcing 50% of key agricultural ingredients from farmers using regenerative practices (22). Unilever has similarly stated that they will implement regenerative agriculture on one million hectares of agricultural land by 2030 (23). Danone also holds similar values and goals for the future, considering themselves a "Société à Mission" company, or a company that must, under French law, legally commit to pursuing a stated mission alongside profit (24). These businesses all operate globally and gross revenue in the billions of dollars, meaning that slight improvements by marginal percentages in resource efficiency or supply chain transparency can produce massive ESG accomplishments *and* financial gains over time.

How ESG Relates to Consumer Trust

One of the most important drivers in relating ESG to consumer trust lies in branding and transparency. As markets become more sustainability-conscious, consumers demand verifiable environmental and social responsibility attributes. ESG metrics can present these attributes clearly and officially. In addition, large firms can use sustainability reporting, regenerative sourcing standards, as well as supply chain traceability to differentiate themselves. For example, Unilever has repeatedly reported brands within their portfolio meeting strict ESG and sustainability criteria growing significantly faster – as much as 30% – than their projected lines,

“with these [brands with a sustainability purpose] contributing nearly half of the firm’s total growth in 2015” (25). These outcomes highlight how ESG functions as both an ethical practice but also as a contributor to consumer loyalty and profitability.

ESG Allows for Risk Reduction and Long-Term Stability

Another huge factor is risk reduction and long-term stability. Integrating ESG standards across all 3 pillars reduces the long-term risks tied to climate unpredictability and resource scarcity. Experiencing extreme weather events, water stress, or poor labor conditions can trigger massive supply chain disruptions that are enormously costly (26); however, ESG-aligned companies mitigate these risks more effectively, which helps to preserve long term profits (27). While having these ESG practices in place and consistently meeting or exceeding metrics doesn’t necessarily make agribusinesses invincible, it clearly does help them reduce losses and overall risk.

Efficiency through ESG Usage

Possibly the most simple element is operational efficiency. Sustainability often overlaps with reducing costs. Energy-efficient processing facilities, waste reuse systems, and more structured organization can dramatically reduce operating costs. This can be seen across many different agribusinesses, such as Mission Foods, a major tortilla manufacturer, where their new energy-efficient processing design “enabled the company to reduce the electricity consumption of its new facility by roughly 18% compared with existing facilities, leading to annual energy savings of over USD 300,000 per year,” (28). Building efficiency practices can be expensive upfront, yet it still allows for hundreds of thousands of dollars in savings in the long term. ESG-aligned investments are incredibly fruitful over multi-year periods, even when the up-front costs of implementing them are high, as seen with Mission Foods.

ESG Benefits on Smaller Farms

While these ESG initiatives can reinforce corporate resilience and long term advantages on a large scale, they also benefit smaller farms in proportional ways. On small and regenerative farms, ESG practices create profitability more often through innovation, diversification, and community interaction.. Many farms that adopt regenerative agriculture techniques such as rotational grazing, cover cropping, nutrient management, IPM, and other practices (29) report increases in soil health, lower input costs, and also stronger relationships with local customers.

ESG’s Helping Hand with Competition

Unlike larger national corporations, smaller farms often compete by marketing transparency and more value-based production. Many of these businesses that track and publicize their ESG-aligned practices attract consumers willing to pay higher premiums for verified environmental benefits. One study showed that across Europe consumers shopping for pork, milk, and bread products were willing to pay as high as 26% premiums across all categories (30). Smaller agribusinesses are able to differentiate and add value to their products through the use of ESG or ESG-adjacent systems like Certified B Corporation, Fair Trade, Organic, or other labels.

Case Study: Vital Farms

Additionally, farms using regenerative models often benefit from efficiency gains that accumulate over years; as techniques such as improving soil structure allow for fewer fertilizers, better water

retention, and increased biodiversity reduces the need for pesticides. These ecological improvements directly lower operating costs and boost profitability over time (31).

The example of Vital Farms illustrates this relationship between regenerative models and efficiency very well. Their strong ESG performance and verified transparency has helped to differentiate them in an otherwise very competitive market – also allowing them to build a more loyal customer base and achieve strong financial growth. A variety of different methods – including additional regenerative agriculture and a reduction in operational emissions intensity – enabled Vital Farms to report a 29% increase in net revenue in 2024 (32, 33). This connection between ESG performance and attracting customers also demonstrates that ESG investments can be quite powerful for small or medium sized agribusinesses looking to compete with large-scale organizations.

Risk and Financial Tradeoffs

A very consistent theme across almost all ESG case studies in agriculture is the tightrope walk between short-term expenses and long-term profitability. While too much spent early up-front can hinder profits if the agribusiness fails to bring in enough money later on, if the balance is struck just right it is a very powerful tool. ESG aligned projects, whether installing precision irrigation systems, implementing cover crops, or adopting blockchain traceability tools, can become very costly, so it is vital especially for smaller farms to strike the balance between short-term costs and long-term profitability.

On the flip side, research and industry data show that over longer time frames, ESG aligned strategies produce lower energy, fertilizer and water costs, higher crop yields or livestock productivity, increased consumer willingness to pay, lower environmental risk, and stronger brand reputation (34, 35). This modern shift allows for strategic investments in long term resilience with more focused ESG practices.

Exhibit 1 - Farmers Embracing Regenerative Agriculture Can Expect Significant Financial Gains

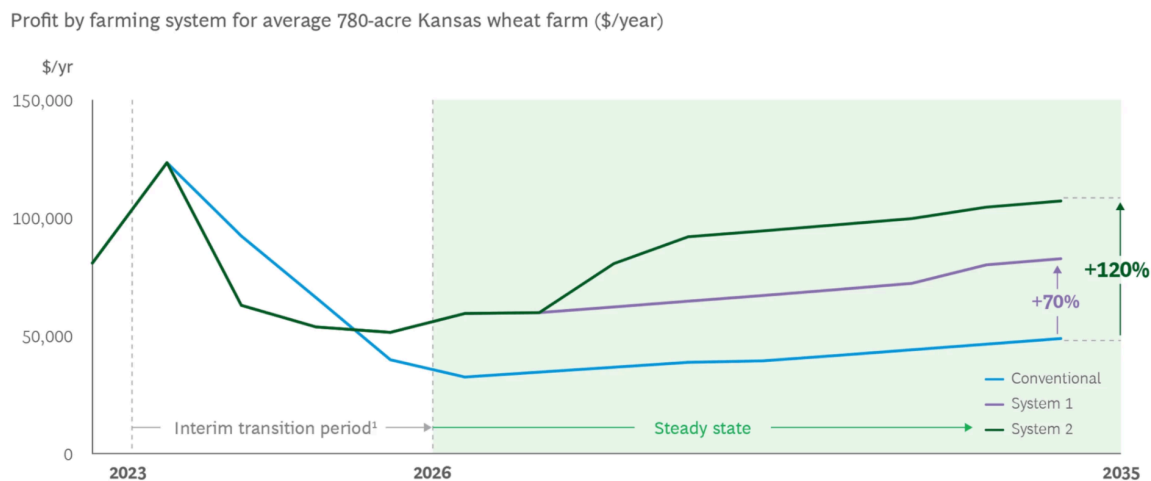


Figure 5 (34) shows the financial gain that can happen over 10+ years with agribusinesses who focus on regenerative farming practices such as this wheat Farm in Kansas

Incentives for ESG Adoption

Policies and incentives also play a critical role in ESG support. As outlined earlier, government assistance, tax credits, and cost-sharing programs make ESG adoption more feasible and attractive for smaller producers (36). Programs like these can help to bridge the short-term, financial strain with the long-term sustainability benefits.

Agribusinesses direct ties to Food Security

While financial performance remains essential to any business, the agricultural sector carries quite a heavy load: its success directly determines food security and environmental stability worldwide. ESG adoption can help agribusinesses safeguard soil health, reduce emissions, and preserve the futures of ecosystems, all practices that impact global sustainability (37). The case studies presented show how ESG investments are not just ethical obligations or branding strategies, but how they can also help with agribusiness profitability and global food security.

Discussion

Do ESG Metrics Actually Measure What Matters in Agribusiness?

ESG Frameworks in agribusiness are effective. While they may not necessarily capture all of the information that a company has to offer regarding their efforts in reaching certain goals or commitments, it does capture most of it – and also, at the ground level, what is it truly measuring? The purpose of ESG metrics are literally to improve Environmental, Social, and Governance pillars in companies, which are what most Agribusinesses stand for in the first place. Even though ESG metrics may not function as a precise measurement of all the sustainable practices a corporation is carrying out, they still act as an important tool capable of shaping behavior on a large scale. The danger does not lie in the fact that ESG metrics are imperfect, but rather that they are sometimes treated as absolute endpoints rather than evolving indicators that are designed to adapt to all the vast complexities in the industry of agriculture.

Where does ESG Fall Short, and Why Does That Matter for the Future?

The heftiest limitations of ESGs are the issues with data gaps, a lack of standardization, and inherent bias towards large firms with greater reporting capacity (both with finances as well as resources). If people want the use of ESG to grow and be more accepted across various industries, it needs to be something that investors and consumers alike can comfortably rely on without a fear of being misled or confused.

The data gaps, for one, pose a large issue. It is like ripping a few pages, or even chapters in some cases, out of a book and expecting whoever is reading it to understand the full story – it's literally not possible. This is bad for both the company, as they are able to potentially act scandalously (greenwashing even) and reap the benefits of 'meeting' ESG goals when they may really be disregarding some, as well as the consumers and investors, as they have absolutely no idea what they will be getting. A company may be perfectly upholding, and even exceeding every goal they set for themselves, while another may be barely scraping by just half of them, but only reporting those, allowing for full marks. The lack of standardization also adds to the same issue, as it disregards any idea of transparency, but it also creates another problem; not only may some companies be hiding how they are truly doing, but a lack of consistency across industries and organizations makes it so some may be vastly harder to achieve and require more time, money, and resources to meet, while others are quite simple or easy – ruining

competition. The inherent bias towards larger corporations with lots of money also taints competition, as huge, industrialized companies may not prioritize ESG metrics, or may twist the data and report without transparency to their advantage. If ESG systems do not work to repair these issues, their credibility will only get worse, destroying the very foundations upon which they function.

Is ESG Compatible with Profitability, or is it a Financial Risk?

ESG is incredibly compatible with making profits, but it takes time to be clearly seen. There are many different moving parts that allow for meeting these certain goals or metrics to create money – the most notable ones being government incentives, operational efficiency, and consumer trust. It makes sense for smaller farms or businesses to be a little worried about the up-front cost and financial risk of gathering data for certain metrics, automating tasks, or buying the necessary tools to more efficiently complete tasks, but it is all worth it. Government incentives are a great place to start, as they can allow for grants or tax breaks to cost-effectively start the process of working towards more sustainable futures. The next steps oftentimes involve increasing operational efficiency, which is definitely costly up-front, but over time pays off. Consumer trust can also be built vastly through goals and commitments to being more sustainable or helping out workers, and it also helps to catch the eye of investors – all things that allow for long term profits, minimizing the financial risk that may seem overwhelming at first.

Why is There Still Reason to be Optimistic?

Despite the many challenges that have been talked about throughout the paper, ESG is fundamentally incredibly promising. Advancements in potentially reducing the costs of data collection, to standardizing metrics across industries show a bright future ahead, with government incentives already starting to lower the barrier for meaningful ESG adoption. The case study with Vital Farms also shows that farms and agribusinesses are already enjoying the many benefits.

Conclusion

This paper demonstrates how ESG strategies, while imperfect, play a critical role in supporting all types of agribusinesses, from huge corporations to small, family run farms. When implemented thoughtfully, ESG frameworks reduce risk, improve financial performance, and strengthen consumer trust; however, in order for ESG systems to reach their true potential, lots of work is still needed in the future: Refinement of metrics, more support for smaller producers, and a shift away from performative sustainability to actual meaningful impact and commitments is a great place to start. Policy makers and investors need to treat ESG systems as not a constraint on profitability or a tool to make themselves more appealing, but rather a meaningful strategy in safeguarding food systems, ecosystems, and economic sustainability worldwide.

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