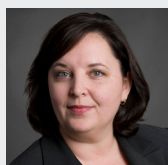




ESG Integration in Action— Sustainable Agriculture



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Sustainable Agriculture

Sustainability in the agricultural sector is a challenging web of considerations. On the one hand, agriculture accounted for 18.4% of global greenhouse gas (GHG) emissions (in 2016),¹ alongside ecosystem loss, and land degradation. It also accounts for 70% of all freshwater withdrawals² and is the largest contributor to nutrient runoff (a process that creates toxic algal blooms as well as “dead zones” in aquatic ecosystems). On the other hand, agriculture is a powerful force for good. It provides the food we all need to survive and has an outsized role in reducing poverty.

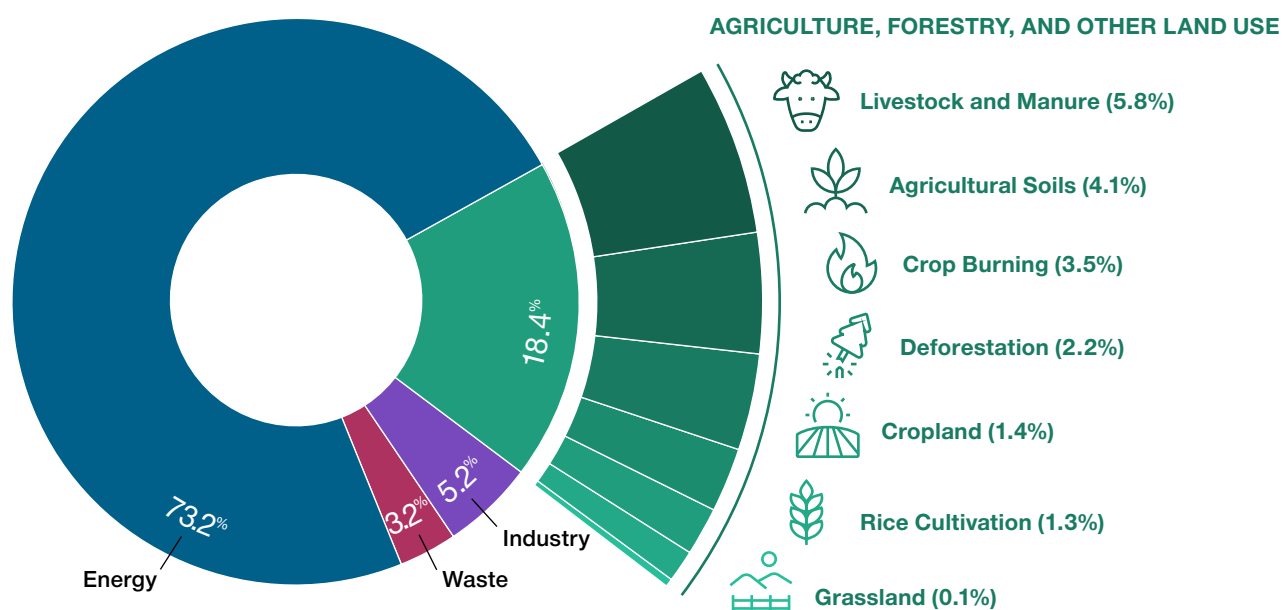
The United Nations forecasts food demand to increase more than 50% by 2050, if the global population grows to an expected 9.8 billion (from 7.7 billion in 2021) and incomes increase across emerging markets. As investors, we can play a role in directing capital toward agricultural projects that can help close that food gap, but we also must ensure that our investment is being deployed sustainably. Investing in the same agricultural practices of the past 50 years will only serve to exacerbate the sector’s negative impacts—eventually leaving both society and investors to suffer the consequences.

Increasing food production by more than 50% without a radical change in traditional farming practices would require an enormous amount of land conversion and a sizable increase in GHG emissions. Neither is compatible with limiting global warming to a maximum target rise of 1.5°C. Indeed, most scenarios imply that agricultural emissions need to contract by half from 2016 levels, alongside reforesting 585 million hectares of land.

There are a range of sustainability issues that we believe will impact companies, and each can vary substantially in how they impact the business (such as a binary event or compounding pressures). For example, a food company may face earnings volatility driven by a commodity shock resulting from physical climate risk, or it may face a steady, gradual shift in consumer preferences.

At T. Rowe Price, our equity and credit analysts consider sustainability issues related to agriculture, forestry, and other land use (AFOLU) as part of their fundamental investment research. Often, they receive support from our ESG specialists when considering how AFOLU issues may impact specific industries or securities.

Greenhouse Gas Emissions by Source (2016)³



¹ Climate Watch, The World Resources Institute (2016)—most recent data available

² World Bank (2020)

³ Source: Our World in Data (September 2020). Data as at 2016—most recent available.

Sustainable Agriculture in RIIM

In addition to our investment analysts' fundamental research, sustainable agricultural factors are systematically identified in our Responsible Investing Indicator Model (RIIM). They are key factors in our ESG analysis of the food, beverage, and related retail industries and the chemicals sector. They also come into play in sectors contributing to new agricultural technologies like industrials and information technology.

Sustainable Agriculture Factors Featured in RIIM

Primary agriculture, forestry, and other land use (AFOLU)-related data inputs (non-exhaustive list)

SUPPLY CHAIN

Land use and biodiversity incidents
Supplier environmental programs



WATER USE

Water intensity
Water management programs



RAW MATERIALS

Sustainable agriculture programs
Roundtable on Sustainable Palm Oil-certified palm oil sourcing
Animal welfare



ESG ACCOUNTABILITY

Reporting standards
Board accountability
Performance targets
Executive committee accountability

ENVIRONMENT PRODUCT SUSTAINABILITY

Green revenue (sustainable agriculture, etc.)
Brown revenue (fertilizer)



LAND USE

Biodiversity programs
Forest certifications
Deforestation programs
Land use and biodiversity incidents



Building a RIIM Profile—Bunge (Case Study, June 2021)

Evaluating a company's practices concerning sustainable agriculture isn't always straightforward. Given the scale, complexity, and diversity of agricultural supply chains, we regularly see evidence of corporate management of the issues coupled with controversies.

In 2021, we found one company, Bunge, in such a situation. Bunge is an American agribusiness with international operations in soybean exports, food processing, grain trading, and fertilizer. External ESG ratings providers took very different views on the company, with one giving Bunge top marks (AAA rating) and another giving the company its second-worst possible rating (high risk). Our RIIM analysis, meanwhile, rated Bunge as green overall with its score having improved gradually over past years. However, multiple categories in our model flagged orange due

to Bunge's exposure to deforestation controversies. Its environment and social scores also fell toward the bottom of green-rated territory.

RIIM puts a high level of materiality (the ESG factors we consider to matter most) on the company's supply chain management (both environmental and social), as well as raw materials procurement, product sustainability, and society and community relations. RIIM flagged nongovernment organization (NGO) reports alleging multiple incidents of deforestation and biodiversity loss throughout the company's supply chain, especially in sensitive regions of South America and Indonesia. RIIM also pulled in quantitative data evidencing Bunge's supply chain management practices, which we fortified with our own fundamental assessment and stewardship activities.

Bunge RIIM Profile

<div> RIIM INDICATOR </div>		Sustainable Agriculture Factors	
<div> Environment </div>	<div> Operations </div>	<div> Supply chain (environment) </div> <div> Raw materials </div> <div> Energy and emissions </div> <div> Land use </div> <div> Water use </div> <div> Waste </div> <div> General operations </div>	
	<div> End Product </div>	<div> Environmental product sustainability </div> <div> Products and services environmental incidents </div>	
<div> Social </div>	<div> Human Capital </div>	<div> Supply chain (social) </div> <div> Employee safety and treatment </div> <div> Diversity, Equity & Inclusion (DEI) </div>	
	<div> Society </div>	<div> Society and community relations </div>	
	<div> End Product </div>	<div> Social product sustainability </div> <div> Product impact on human health and society </div> <div> Product quality and customer incidents </div>	
		<div> Business ethics </div> <div> Bribery and corruption </div> <div> Lobbying and public policy </div> <div> Accounting and taxation </div> <div> Board and management conduct </div> <div> Remuneration </div> <div> ESG accountability </div>	
		<div> Data privacy incidents </div>	

The security identified and described is intended to illustrate the RIIM and does not necessarily represent securities purchased or sold by T. Rowe Price. No assumptions should be made that the security analyzed, or other securities analyzed, purchased, or sold, was or will be profitable. The RIIM profile is not a recommendation to buy or sell any security and is not indicative of a company's potential profitability. It measures ESG factors only. The RIIM profile is as of June 2021, is provided as a historical example only, and is subject to change.

ENGAGING WITH BUNGE

In May 2021, we engaged Bunge on deforestation and supply chain management. We wanted to better understand Bunge's ambitions and convey that deforestation and human rights are material in our investment analysis.

The Intergovernmental Panel on Climate Change estimates that agriculture, forest, and other land use (AFOLU) accounted for about 13% of the world's carbon emissions and 23% total GHG emissions between 2007 and 2016. AFOLU activities are the dominant contributors to deforestation, which impedes the ability for the world's land sinks (forests, croplands, and wetlands) to absorb carbon from the atmosphere. Between 2007 and 2016, natural terrestrial carbon sinks are estimated to have offset 28% of human-generated emissions.⁴

OUTCOME

We learned that Bunge had an ambitious target for a deforestation-free supply chain by 2025, including legal deforestation. The company established a palm oil dashboard providing robust disclosure on its palm oil mills and addressing accusations of deforestation or biodiversity loss. Beyond disclosure, Bunge discussed its engagement with suppliers, demonstrating a commitment to cut ties with suppliers that fail to address breaches in policy compliance.

On social supply chain management, the company demonstrated strong standards, but it scored poorly in this category in RIIM due to shortcomings in applicability to indirect suppliers and lack of audits. The score was further compounded by repeated reports of forced and child labor use among suppliers. Encouragingly, however, Bunge indicated that it plans to conduct a human rights assessment to improve supply chain management and committed to supplier audits starting in 2021.

We were encouraged by the measures to eliminate deforestation and human rights abuses in its supply chain. As Bunge is an agribusiness, these are two significant ESG risks we continue to monitor.

Before the company's May 2021 annual shareholder meeting, we had another opportunity to engage with Bunge on the topic of deforestation. The company had received a shareholder resolution seeking additional reporting on its exposure to deforestation risk related to soy production. As the company spoke with its largest investors about the issue, the board understood our interest in additional disclosure on this topic and elected to recommend in favor of the shareholder resolution. With the company's support, the resolution received overwhelming support from 98% of shares voted.



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and other land use
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emissions.⁴**

⁴ Climate Change and Land, Intergovernmental Panel on Climate Change (IPCC), 2019.

The security identified and described is intended to illustrate the ESG security evaluation process and RIIM and does not necessarily represent securities purchased or sold by T. Rowe Price. No assumptions should be made that the security analyzed, or other securities analyzed, purchased, or sold, was or will be profitable. This is not a recommendation to buy or sell any security and is for informational purposes only. The views and opinions above are as of June 2021 and are subject to change.

Collaborative Engagement on Food Sustainability

In 2021, AFOLU issues featured prominently across our stewardship activities. We held 75 engagements with 65 companies during the year covering issues such as deforestation and sustainable agriculture.

These included collaborative engagements. One was conducted through the Farm Animal Investment Risk and Return (FAIRR) initiative, a global network of investment organizations that actively engages with the world's largest food retailers and manufacturers about

ESG risks within the global food sector, particularly those associated with intensive livestock production. Another was conducted through the Emerging Markets Investors Alliance (EMIA), a not-for-profit organization that enables institutional emerging market investors to support good governance, promote sustainable development, and seek to improve investment performance in the governments and companies in which they invest.

PROTEIN DIVERSIFICATION

In a collaborative engagement, conducted through FAIRR, we signed letters to many of the world's major food retailers urging them to grow their share of sustainable, plant-based proteins and build out their strategy.

The companies we engaged with included Conagra, Costco, Walmart, Wm. Morrison, Carrefour, Casino, Kerry Group, Sainsbury, Ahold Delhaize, Nestle, Tesco, Unilever, Woolworths, Kraft Foods, Kraft Heinz, and Coles.

Protein diversification involves the transformation of portfolio composition by shifting away from an over-reliance on resource-intensive animal proteins toward lower-impact protein ingredients and products. These include plant-based, cell-cultured, fungal-based, and whole-plant alternatives to meat, dairy, seafood, and other animal proteins.

We have been pleased to see many of these companies set board-level, public commitments around portfolio transformation.

All 25 companies within FAIRR's scope of engagement now recognize protein diversification as a material issue for their business, compared with none five years ago.

SUPPLY CHAIN MONITORING IN THE AMAZON

In a collaborative engagement, conducted through EMIA, we sought to:

- Engage protein producers about material ESG issues
- Provide protein producers with a forum to communicate their policy intentions and actions and receive feedback
- Highlight hurdles to the implementation of best practices and discuss the role investors can play in changing government policy

The companies included JBS, Marfrig, and Minerva.

Ruminant livestock (cattle, sheep, and goats) account for roughly half of agriculture's greenhouse gas emissions and use about two-thirds of global agricultural land.⁵ Deforestation has caused almost half of Brazil's carbon emissions in the last 30 years, with the loss of more than 780,000 square kilometers of forest and 2,000 species. Pasture expansion for cattle production has been linked to 80% of clearing.⁶

The engagement informed our research and allowed us to impart the message that supply chain monitoring is a material factor in our investment analysis for the sector.

The specific securities identified and described are for informational purposes only and do not represent recommendations.

⁵ Creating a Sustainable Food Future, World Resources Institute (July 2019)

⁶ Cattle ranchers and deforestation in the Brazilian Amazon: Production, location, and policies, Skidmore, Moffette, et al (2021)

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