



# **Climate Transition Plans in the U.S. Food Sector**

## **Addressing Risks to Farmers and Farmworkers**



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## Introduction

The food and agriculture sector is acutely exposed to climate change, as well as being responsible for approximately one third of global greenhouse gas emissions. Avoiding 2.1-3.5°C temperature change will be impossible without transformative changes in the food sector. Failing to act now will only worsen the climate-related economic disruptions predicted for this sector. Propelled by concerns from investors and consumers, food companies are now developing and implementing climate transition plans in order to meet their targets, while at the same time ensuring stability of their supply chains in the face of rising temperatures, droughts, and floods.

At the crux of those plans is an often unspoken but critical truth: farmers and farmworkers will necessarily bear the responsibility of making the necessary changes to protect food production from climate change and reduce emissions from agricultural production. Most GHG emissions in the food sector come from the agricultural production phase, and agricultural operations are most at risk from droughts, floods, and heat waves.

The climate transition provides an opportunity to move towards an agricultural production model that is more sustainable, regenerative, and profitable than the current one. Climate smart agriculture practices often increase yields and have the potential to generate new jobs in fields such as cover crop termination or technology service provision. However, some practices have [high up-front](#) or operating costs that are out of reach for many farmers for whom farming is already not a profitable venture. Small-scale operators, which comprise 89% of U.S. farmers, [rely on off-farm employment](#) for most of their income. At the same time, a warming climate threatens agricultural productivity and creates hazards for the agricultural workforce.



While climate change is global, the effects are local. Impacts to farmers and farmworkers, as well as appropriate risk mitigation measures, vary greatly depending on commodity and sourcing region. The risks to cocoa farmers in West Africa, for example, will be very different from those to corn farmers in Iowa. This brief addresses some of the likely risks to multinational agricultural companies with global supply chains, especially those sourcing tropical products. It also addresses some of the issues specific to companies sourcing from the U.S.

The climate transition in the food sector brings huge opportunities but also carries risks that could threaten the future of food companies, the agricultural workforce, and global food security. Food companies must implement emission reduction strategies throughout their supply chains, as described in Ceres recent [Investor Guide to Climate Transition Plans in the Food Sector](#). But a failure to prioritize the livelihoods, health, and safety of farmers, farmworkers, and rural communities could create a host of financial risks for companies and their investors. Farmers and farmworkers underpin not only the entire global food system but also the economy and the whole of society; the continued viability of food companies depends on them. It is therefore in line with investors' fiduciary duty to ensure that food companies are adapting to climate change and reducing GHG emissions in a way that is just and equitable for farmers and farmworkers in their supply chains.

# The business case for addressing risks to farmers and farmworkers

While discussions of the just transition in energy and industrial sectors have focused primarily on worker displacement during the transition to less carbon-intensive modes of production, the just transition for the food and agriculture sector is two-fold and should also be prioritized. Climate change itself, as well as efforts to address it, have the potential to exacerbate existing vulnerabilities and inequalities within the food sector. As food companies develop their own transition plans, they therefore must address two related issues:

- The ways in which the physical impacts of climate change may negatively impact farmers and farmworkers (*physical risks*)
- Potential unintended consequences of efforts to adapt to or mitigate climate change for farmers and farmworkers (*transition risks*)

## Physical Risks

According to the IPCC, as of 2021, global temperatures have already risen 1.1°C above pre-industrial levels. Without significant changes, temperatures are predicted to rise by 2.1-3.5°C – a scenario that can exacerbate extreme flooding, drought, heatwaves, and other weather conditions that are already disrupting agricultural production around the world. Climate-related impacts on crop yield are already unfolding and destabilizing effects are **predicted to emerge before 2040 for major producing regions**, substantially sooner than previously expected. Global corn, soy, wheat, and rice production could **decline by 3-7%** for each degree Celsius of temperature rise.

Climate change will also create dangerous conditions for farm workers. Farm workers are already twenty times more likely to die from extreme heat than other outdoor workers in the U.S., in part due to a wage structure that pays based on the number of units harvested and discourages breaks. These farm workers are also likely to be made more vulnerable by society due to their identities, as 75% of U.S. farmworkers are Latino/Latina and nearly half of them lack authorized immigration status. Outdoor workers could be exposed to four times as many days with temperatures higher than 38 °C by midcentury. Changes in temperature and precipitation patterns are also expected to increase incidence of crop diseases and pests, in turn resulting in an increased use of pesticides on farms. The chemicals used in many pesticides are widely understood to increase the **likelihood of cancer**, birth defects, reproductive harm, and immunotoxicity.

Increased heat and drought, along with catastrophic events such as storms, reduce agricultural yields and **put economic strain on farmers and rural communities**. Entrenched inequities make particular groups of farmers more vulnerable than others. African American farmers in the southern U.S. tend to have smaller landholdings and barriers in access to capital and credit, which **hamper their ability** to adapt to climate change. Along with impacts on individual farmers, there is concern about the wider economic and social impacts as well. Climate change is already leading to **geographic shifts in crop production** as an adaptive strategy. Many rural economies are less diverse than urban areas in their economic activities, and the loss of a traditional economic sector could **affect the stability of rural communities**.





Farmers and farmworkers in the Global South face similar risks, made more severe by the predicted intensity of climate impacts and existing conditions such as poverty and food insecurity. By 2100, large portions of the global tropics and subtropics are predicted to **experience dangerous heat for much of the year**. In some areas, **deforestation is further exacerbating** climate-induced heat exposure for agricultural workers. Such conditions could be particularly dangerous for farmworkers in labor-intensive supply chains such as cocoa, coffee, palm oil, and many fruits. Companies and investors should pay close attention to supply chains of such labor-intensive crops and those where human rights violations, such as forced labor, gender discrimination, and violations of Indigenous land rights, **are already evident**. Suppliers with inadequate protections for human rights are unlikely to provide sufficient protections for workers against climate-related impacts.

Reduced crop yields and geographic shifts in crop suitability will also dramatically affect the livelihoods of farmers and farm workers in the Global South. Smallholder farmers may lack the tools, expertise, land, or water resources to shift to a different crop or irrigate an existing crop in response to climate change. Those whose livelihoods are most intensely affected will face food insecurity, poverty, and other challenges, such as the ability to keep children continuously enrolled in school. Loss of livelihoods could lead to **migration** from areas heavily dependent on agriculture, with the potential for **millions of displaced people**.

The likelihood that climate change will exacerbate vulnerabilities and inequalities among farmers and farmworkers presents a material business risk to food companies and their investors. Extreme heat already **threatens to exacerbate worker shortages** in labor-intensive produce supply chains in the U.S. Temperatures in key fruit and vegetable production regions of the West and Southwest regularly exceed 38 °C during harvest season. The COVID-19 pandemic demonstrated how threats to worker safety can disrupt supply chains, as the closure of U.S. meatpacking plants due to the spread of COVID **led to severe shortages of meat products**. Without appropriate support for adaptation, these impacts have the potential to destabilize agricultural supply chains. A lack of protections for farmworkers can also create reputational risks for companies, as demonstrated by **public protests** in April 2022 calling on Wendy's to strengthen its policies to protect farmworkers from forced labor and harmful working conditions.



## Transition Risks

Agricultural production and agriculturally driven deforestation are responsible for most emissions from the food sector. Food companies must tackle these emissions in order to achieve climate targets in line with the Paris Agreement. As described in Ceres recent report on **Climate Transition Plans in the U.S. Food Sector**, food companies will achieve the largest proportion of their emission reductions by addressing supply chain emissions embedded in their procurement. Reducing these emissions will require substantial shifts in the products companies are sourcing, where they are sourcing them from, and how those products are produced. These shifts combine opportunities, as well as risks for farmers and farmworkers, and have the potential to alleviate or exacerbate existing vulnerabilities and inequalities.

As an example, many companies are responding to shifting consumer preferences by increasing their plant-based offerings or developing new alternative meat products. These products could create new markets for legume crops or even opportunities such as **producing cultured meat in bioreactors at the farm level**. However, a shift away from animal products could also result in loss of livelihoods for livestock and feed producers, and barriers to transitioning into emerging plant-based markets could lead to exclusion for some farmers.

Technologies that can help increase resilience and reduce emissions, such as precision agriculture to reduce fertilizer-induced emissions or feed additives to tackle enteric methane, require initial or ongoing investments. Even regenerative agriculture practices such as no-till and cover cropping—**while often profitable**—have up-front costs and **variable effects on crop yields and returns** in some regions. The shift to less emission-intensive sourcing may reinforce inequalities by privileging wealthier farmers who have the resources to manage the costs and potential risk of new technologies. Such a shift has the potential to exclude historically disadvantaged groups, such as BIPOC and Indigenous farmers, women, and those without secure land tenure.

An agricultural transition that fails to take social inequalities into account not only creates reputational risk for companies but could undermine the climate transition by eroding public support for necessary shifts in agricultural practices. As an example, after the government of the Netherlands announced an ambitious target to reduce nitrous oxide emissions—most of which come from fertilizer application—angry Dutch farmers **protested en masse** throughout summer 2022, concerned that decreasing fertilizer use would decrease agricultural yield. Similarly, Sri Lanka abruptly banned imports of synthetic fertilizers and pesticides in spring of 2021, leading to a rapid drop in rice and tea production, skyrocketing food prices, and widespread protests. The country reversed the policy seven months later. While in the Sri Lankan case the policy was likely due more to **foreign currency shortages** than environmental goals, both cases illustrate how farmer and public support is critical for a successful transition—and ignoring social impacts of transition strategies can lead to organized resistance.





## Engaging with food companies on a just and inclusive transition

As they develop and implement climate transition plans, companies must plan for how to avoid negative impacts to vulnerable groups and ensure a just and inclusive transition. The [Ceres Roadmap](#) and the [Climate Action 100+ Net Zero Company Benchmark](#) describe best practices for companies in all sectors to develop and implement just and inclusive transition plans. In engaging with food companies, investors can further ask how companies plan to address physical and transition risks to farmers and farmworkers.

### **Has the company acknowledged the climate risks to farmers and farmworkers and committed to addressing them?**

Investors engaging with food companies can look for evidence that the company (1) formally recognizes the unique challenges that climate change poses for farmers and farmworkers and the potential effects of the company's transition strategy on those groups and (2) commits to reduce emissions in line with recognized just transition principles. The company's commitment to a just transition for farmers and farmworkers should complement a robust human rights commitment aligned with the UN Guiding Principles on Business and Human Rights.

Investors can further engage companies on their sustainable agriculture commitments and procurement policies, such as embedding farmworker safety and human rights protections within supplier policies and codes of conduct. For example, companies sourcing palm oil should require suppliers to have a **No Deforestation, No Peat, No Exploitation (NDPE)** policy, which combines environmental requirements with protections such as Free Prior and Informed Consent for Indigenous communities. Companies may also include commitments to support the transition to climate smart agriculture practices within their supply chains, including farmers and workers who may be affected negatively by changes in agricultural production practices or unable to invest in required technology.

### **Does the company have a plan to address climate risks to farmers and farmworkers?**

Investors can engage with companies on how they are incorporating just transition principles into their climate transition plans. For food companies, ensuring a just transition requires a commitment to address issues in the supply chain. Components of a plan may include strategies that:

#### **Share the cost of the transition to climate smart practices**

As companies embed sustainability requirements into their [procurement contracts](#), these requirements will ultimately translate down to the farm level. However, instead of simply requiring compliance and cutting non-compliant suppliers—which may exclude smallholders or farmers less able to handle risk—companies should [incentivize](#) them to adopt sustainable practices by providing financial and technical assistance. Financial arrangements, such as [long-term contracts](#), can provide the stability that farmers need to invest in resilience and low-emissions practices, reducing risk for companies in the long term. Other potential mechanisms include premiums for low-emissions commodities and arrangements that compensate farmers for ecosystem services such as carbon sequestration.

### **Retain or compensate affected farmers and farmworkers**

Climate change will inevitably force companies to make shifts in sourcing, whether short term or long term, with potentially devastating consequences for the communities “left behind” or farmers unable to shift to new crops. Just as companies in other sectors are encouraged to retain, retrain, redeploy, and compensate workers who are affected by the company’s decarbonization efforts, food companies can ease the transition when moving out of sourcing from a particular region or away from a particular agricultural product.

For example, when Horizon Organic ended contracts with dairies in the Northeast, parent company Danone [extended contracts for six months](#) and paid slightly more per gallon in order to give farmers more time to find new buyers for their milk. While this shift was not necessarily climate related—and didn’t fully alleviate problems for affected communities—companies shifting sourcing for climate-related reasons could take a similar approach.

### **Consider food affordability**

While not the focus of this brief, companies can also be mindful of vulnerable customers. Food prices [rose over 11% between 2021 and 2022](#) due to pandemic disruptions, war, and energy costs. Such increases exacerbate food insecurity and have the potential to [cause civil unrest](#), with accompanying business risks.

### **Align policy engagement with a just transition**

Finally, investors should expect companies to support policy and regulations that [support farmers and farmworkers](#) in improving the resilience of agricultural systems and reducing agricultural GHG emissions, as well as legislation that [protects farmworkers](#) from dangerous conditions. Companies should also disclose and engage their trade associations to ensure that their indirect lobbying efforts will help accelerate economy-wide actions needed for all companies to achieve their climate commitments. Ceres’ [Climate-Smart Agriculture and Health Soil Working Group](#) provides a forum for companies to advocate for legislative and regulatory solutions to advance climate smart agriculture practices in the U.S.

## **Was the company’s plan developed in consultation with farmers, farmworkers, and communities affected in its supply chain?**

The just transition requires both fair outcomes *and* fair process. A fair process means that the individuals and groups affected by the transition have a say in what is being transitioned to. Companies should develop transition plans in consultation with suppliers, workers, and communities. Investors can engage with food companies on how stakeholder consultations have included diverse perspectives, especially those from historically marginalized groups that are likely to be most affected by physical and transition risks. [Supply chain traceability](#) is a prerequisite to engagement; investors can look for evidence that companies have sufficient traceability to understand their risks and engage effectively with farmers and farmworkers.

As an example, companies including Aramark, McDonald’s, Walmart, Whole Foods, and Yum! Brands have joined the Fair Food Program, which ensures basic protections for farmworkers, such as pesticide safety and shade. The program was designed and is monitored by the Coalition of Immokalee Workers, and is backed by binding agreements from buyers to suspend purchases from growers who violate worker protection standards.

## **Does the company have clear indicators to track its commitment, and disclose progress on those indicators?**

Commitments are meaningless without indicators to measure success and areas for improvement. As with other commitments and transition plan components, companies should be transparent about the key performance indicators they are using and regularly disclose progress against those indicators.

## Conclusion

Climate change poses risks to the health and livelihoods of farmers and farmworkers, which will disproportionately impact historically disadvantaged groups. Likewise, the necessary transition to low-emissions food production will bring opportunities, as well as costs for farmers and farmworkers and has the potential to alleviate or exacerbate existing vulnerabilities and inequalities. The health, safety, and economic well-being of farmers and farmworkers underpin the continued viability of food companies and the global food system; risks to them constitute material risks for companies. It is imperative that companies develop transition plans that acknowledge these risks and address them in concrete ways.

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## Acknowledgements

### About Ceres

Ceres is a nonprofit organization working with the most influential capital market leaders to solve the world's greatest sustainability challenges. Through our powerful networks and global collaborations of investors, companies, and nonprofits, we drive action and inspire equitable market-based and policy solutions throughout the economy to build a just and sustainable future. For more information, visit [ceres.org](https://ceres.org) and follow [@CeresNews](https://twitter.com/CeresNews).

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