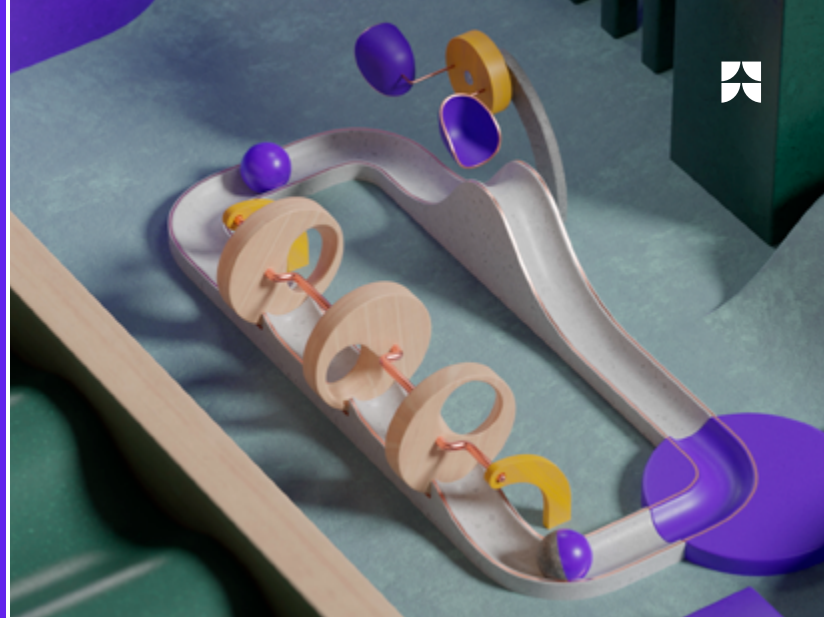




# Agri-food for thought:

How might sustainability change markets in the coming decades?



Unless the agri-food value chain\* restructures, we expect unacceptable damage to plant and animal life and expanding food-supply deficits. Investment risks would increase across the global economy.

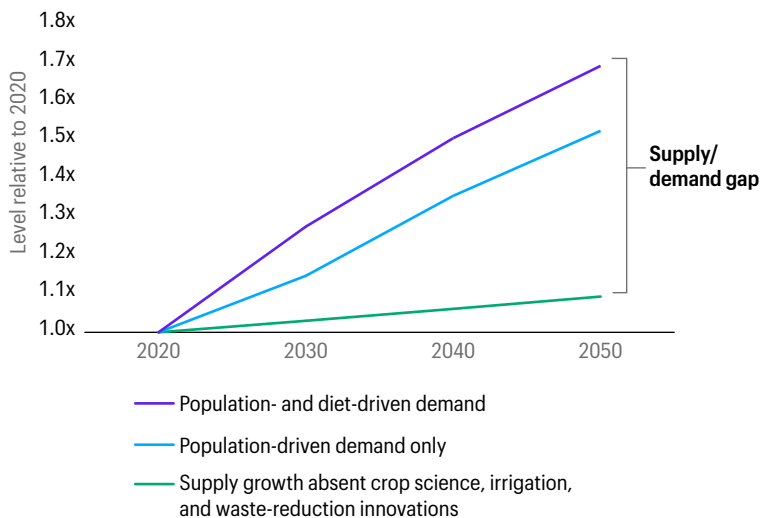
## What drives our perspective? In the next 20 years:

- Global population could reach 10 billion, up from 8 billion today.
- Per-person food demand will likely rise as emerging markets grow wealthier—and so will demand for richer foods, like beef and pork, whose production strains the environment.
- Agriculture’s pollution of soil and water—and its exacerbation of climate change—could easily surpass already-critical levels.
- Increasing competition for land and water, including overexploitation of fisheries, could drive food-supply shocks.

\*The agri-food value chain includes all of the actors and activities that bring food from production in the field to final consumption, where value is added to the product at each stage in the process.

## FOOD PRODUCTION AND CONSUMPTION POSE MAJOR SUSTAINABILITY RISKS

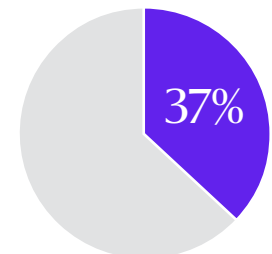
INNOVATION IS NEEDED TO AVOID A WIDENING FOOD SUPPLY/DEMAND GAP



**ESTIMATED**  
**1/3**  
of the world's food is lost or wasted each year. Other studies suggest the **true figure is even higher.**

**70%**  
of global freshwater withdrawals, on average, are **due to agriculture.**

TOTAL GLOBAL GREENHOUSE GAS EMISSIONS



Food production generates 37% of **human-induced global greenhouse gas emissions.**



# What are the biggest problems and their potential solutions?

## Recognize the problems

- Identify unsustainable practices across the agri-food value chain.
- Evaluate specific industries and companies that depend on and perpetuate these practices.

## Evaluate the solutions

- Which crops and fertilizers can most efficiently feed growing populations without toxifying fresh and ocean water?
- Which are most resistant to drought and pests?
- Which irrigation and tilling practices can improve soil health and increase crop yields at the same time?

## Consider adjusting portfolios accordingly

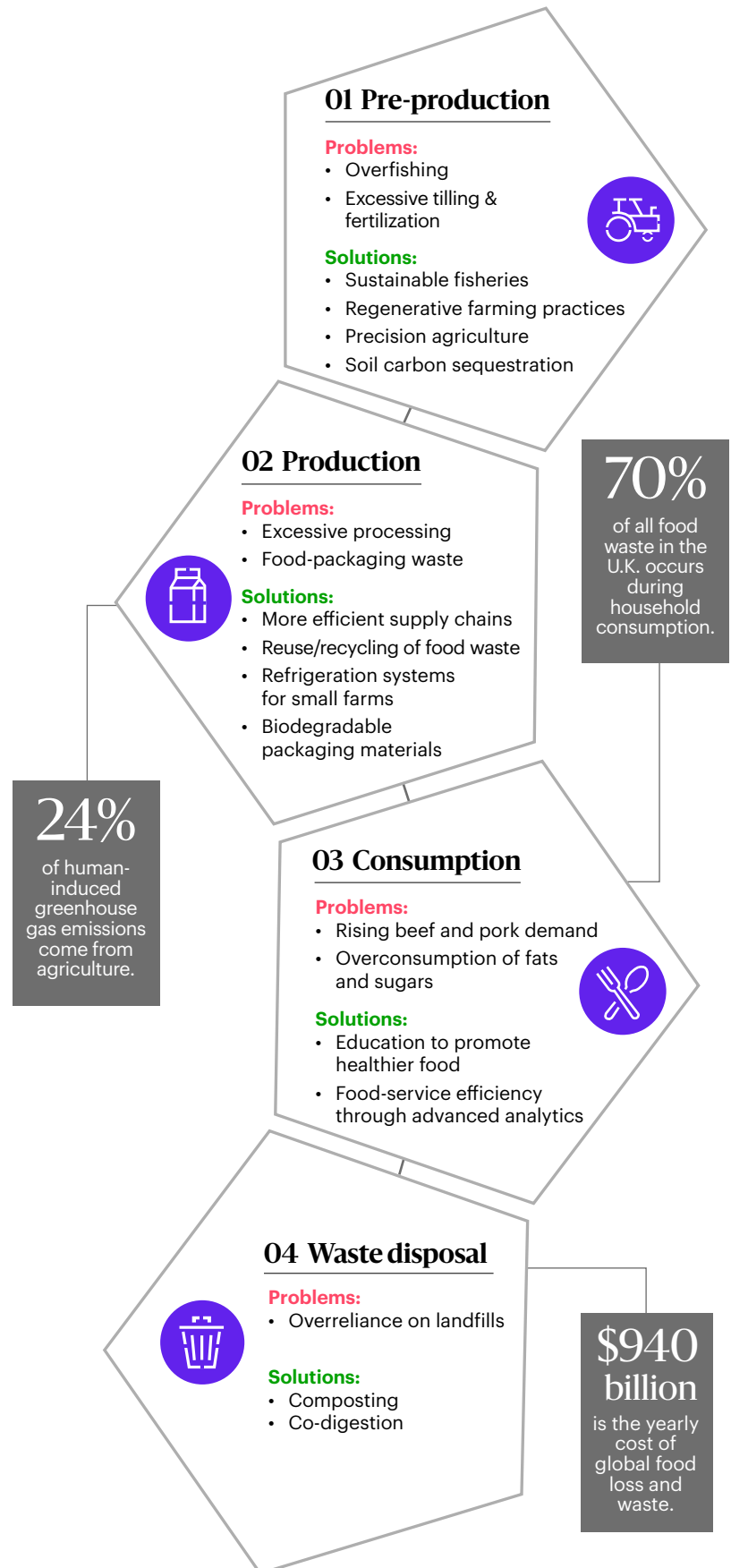
Given the intensifying challenges from current food-production processes, the agri-food cycle will likely restructure in fundamental ways affecting many industries. Companies across the global economy will need to reposition their businesses. Crop sciences, capital goods, agricultural technology, advanced analytics, transportation, food production, packaging, services and waste management, and retail must all adjust to maximize growth and minimize losses.

By carefully evaluating these prospects today, investors can position to potentially capture growth opportunities and reduce exposure to businesses likely to decline.



**TOM LYONS**  
 + Head of Climate  
 + Global Fixed Income Research

## THE AGRI-FOOD VALUE CHAIN





## For further information

We want to help clients build for successful outcomes, defend portfolios against uncertainty, and create long-term financial well-being. To learn more, investment professionals can contact us.

## Contact details

### FOR U.S. INVESTORS ONLY

- For retail clients, contact your financial advisor.
- To reach our U.S.-based intermediary sales professionals, contact your dedicated regional director, or call us at **1-888-877-9275**.
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