

# The World Bank's "Recipe for a Livable Planet"

## GFI's summary of key messages on alternative proteins

In [Recipe for a Livable Planet](#), the World Bank notes that food production causes one-third of GHG emissions and examines 26 of the agrifood sector's most promising emissions mitigation interventions. Alternative proteins (APs), which refer to making meat from plants and cultivating it from cells, are ranked second for climate mitigation potential, at 6.1 GtCO<sub>2</sub> eq per year. The Bank also notes that government investment is critical to realize the full potential of APs.

### Animal-source foods drive climate change and other environmental harms.

- Food systems cause "about a third of all global emissions." This number is "projected to keep growing," and at this rate, meeting Paris Agreement climate targets will be impossible. Animal-source foods are responsible for "almost 60% of total agrifood emissions."
- "Moving from current diets to a diet that excludes animal products could reduce land use by 76%, GHG emissions by 49%, acidification by 50%, eutrophication by 49%, and freshwater withdrawals by 19%."

### Alternative proteins have massive climate mitigation potential.

#### APs are the #2 intervention and can contribute to #1 and #3

APs have the second-highest mitigation potential at 6.1 GtCO<sub>2</sub> eq/year, outranked only by afforestation/reforestation (8.47 GtCO<sub>2</sub> eq/year) and followed closely by reduced deforestation (6.0 GtCO<sub>2</sub> eq/year). Notably, APs free up vast amounts of land for afforestation, reforestation, and other climate-friendly and nature-positive interventions. They also shift demand away from the top two contributors to deforestation: beef production and soy production for animal feed (mostly chickens, pigs, and farmed fish).

#### APs have much larger mitigation potential than other meat production interventions

APs have nine times more mitigation potential than the second most promising intervention to improve meat production (improved ruminant feed digestibility, at 680 MtCO<sub>2</sub> eq/year). The potential from feed additives (e.g., algae) is 380 MtCO<sub>2</sub> eq/year, and from improved ruminant productivity is 179 MtCO<sub>2</sub> eq/year. Other food systems interventions that have less than one-tenth the potential impact of APs include fertilizer innovation (480 MtCO<sub>2</sub> eq/year), rice innovation (243 MtCO<sub>2</sub> eq/year), and manure management (118 MtCO<sub>2</sub> eq/year).

### Government investment is necessary to reach the full potential of alternative proteins.

- At 300-1,900 MtCO<sub>2</sub> eq/year, the immediate potential of APs is greater than other interventions that have received more attention (e.g., ruminant productivity gains and improved feed digestibility, rice production changes, and manure management). However, reaching their full potential will require "research and innovation in alternative proteins by governments to incentivize private sector solutions and create an enabling environment [to] get these solutions to market."
- The Bank points out that government support "is precisely what led to massive cost reductions in key climate technologies like solar PV panels (a reduction of 85 percent between 2009 and 2019) and lithium-ion batteries used in electric vehicles (a reduction of 89 percent between 2008 and 2022)."