



Policy solutions to enhance climate change mitigation through agriculture, forestry and other land use (AFOLU)

Ben Henderson & Guillaume Gruère
Agricultural and Resource Policies Division
OECD Trade and Agriculture Directorate

G20 Workshop on Agriculture and Climate Change
02/09/2021



Mitigation policy potential and implications for agriculture and AFOLU

1. What government policies are currently used?
2. Looking ahead, global economic models shed light on
 - How much agriculture and AFOLU can contribute to climate stabilization goals
 - how to design policy packages that can balance “triple challenge” of food systems
3. Reforms to agricultural support policies are part of the package to address the “triple challenge”
 - Improving the coherence of agriculture support policies
 - Investing in innovation



CURRENT GOVERNMENT POLICIES



There are increasingly ambitious mitigation targets, but supporting policies are still emerging

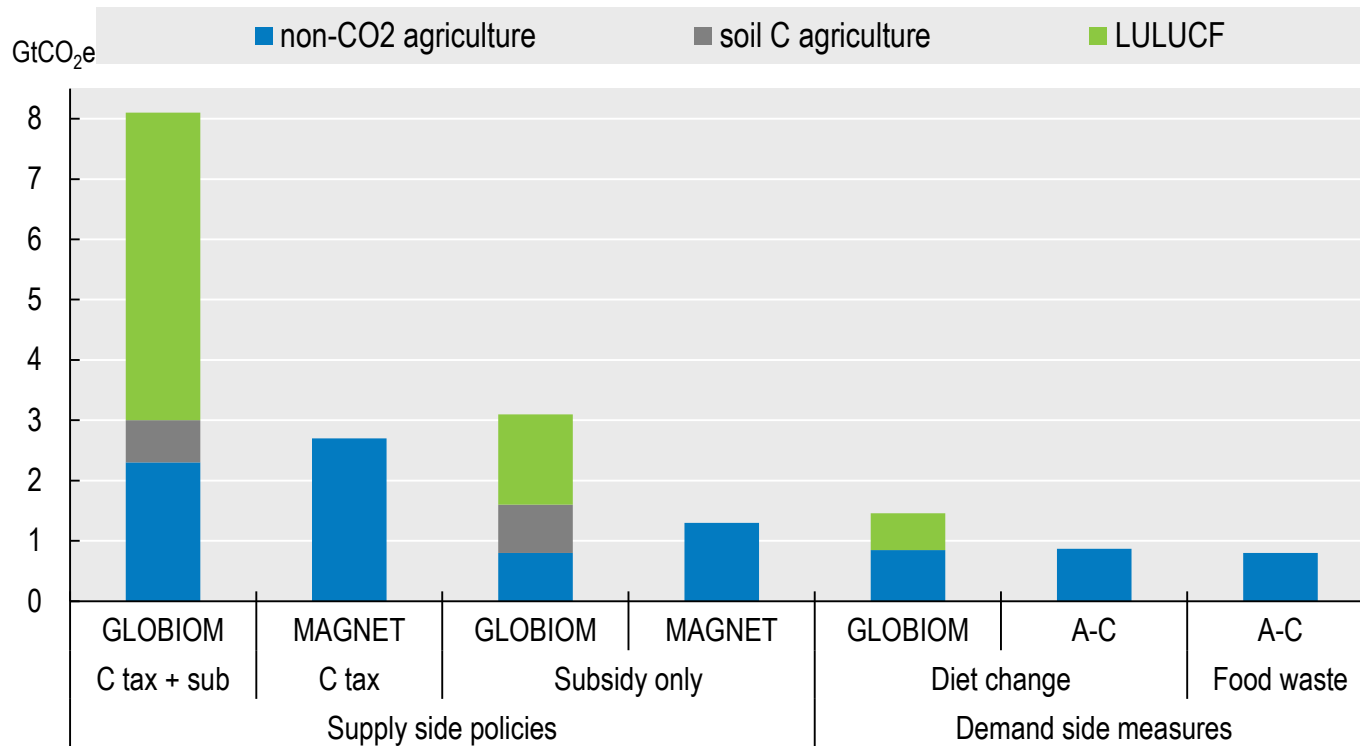
Policy category	Specific instrument	Where it's being applied	Observed progress
Market based instruments	Carbon pricing	New Zealand (possibly by 2025): carbon pricing at farm level for livestock (CH ₄) and at processor level for fertilizer (N ₂ O)	TBD- phased approach – mandatory reporting of farm-level emissions in 2024 – government and the agricultural sector developing a system for farm-level pricing by 2025
	Carbon offsets	Alberta and Quebec, soon Canada, California, China (potentially linked to the respective emission trading systems)	Observed progress with private buyers, but limited coverage
	Abatement subsidies / auctions	Emission reduction fund (ERF) in Australia (auctioned emission credits)	Observed progress, but limited coverage
Agricultural support, grants, and preferential credits	Agricultural support	Common Agricultural Policy in the European Union (EU) Canada and other OECD countries	Insufficiently studied effect (3.5% of reduction according to one study).
	Grants	United States (biogaz), China (fertilisers), Australia (energy)	-
	Dedicated credit line	Brazil (ABC program)	Improving efficacy, reaching its objectives
Environmental regulations	Pollution regulations	Nitrates Directive and pollution control (EU)	Potentially effective
R&D and knowledge transfers	R&D	Multiple countries- Global Research Alliance	Contribution to GHG monitoring and mitigation practices.
	Knowledge transfer	Multiple countries	Increases the adoption of sustainable practices



POLICY MEASURES TO PROGRESS FURTHER



Mitigation policies could reduce ~90% of the AFOLU sector's GHG emissions in 2050



A policy package taxing emissions & subsidising C sequestration (consistent with 2°C) could achieve:

- AFOLU: ~ 8 GtCO₂e/yr (~ 90%)
- Agriculture: 2.5 – 3 GtCO₂e/yr (30 – 45%)

Subsidising non-CO₂ abatement & sequestration is half as effective:

- AFOLU: ~ 3.3 GtCO₂e/yr (~ 35%)
- Agriculture: 1.3 – 1.6 GtCO₂e/yr (14 – 24%)

Reducing consumption of animal products:

- Agriculture: 0.8 – 0.9 GtCO₂e/yr
- AFOLU: ~ 1.5 GtCO₂e/yr

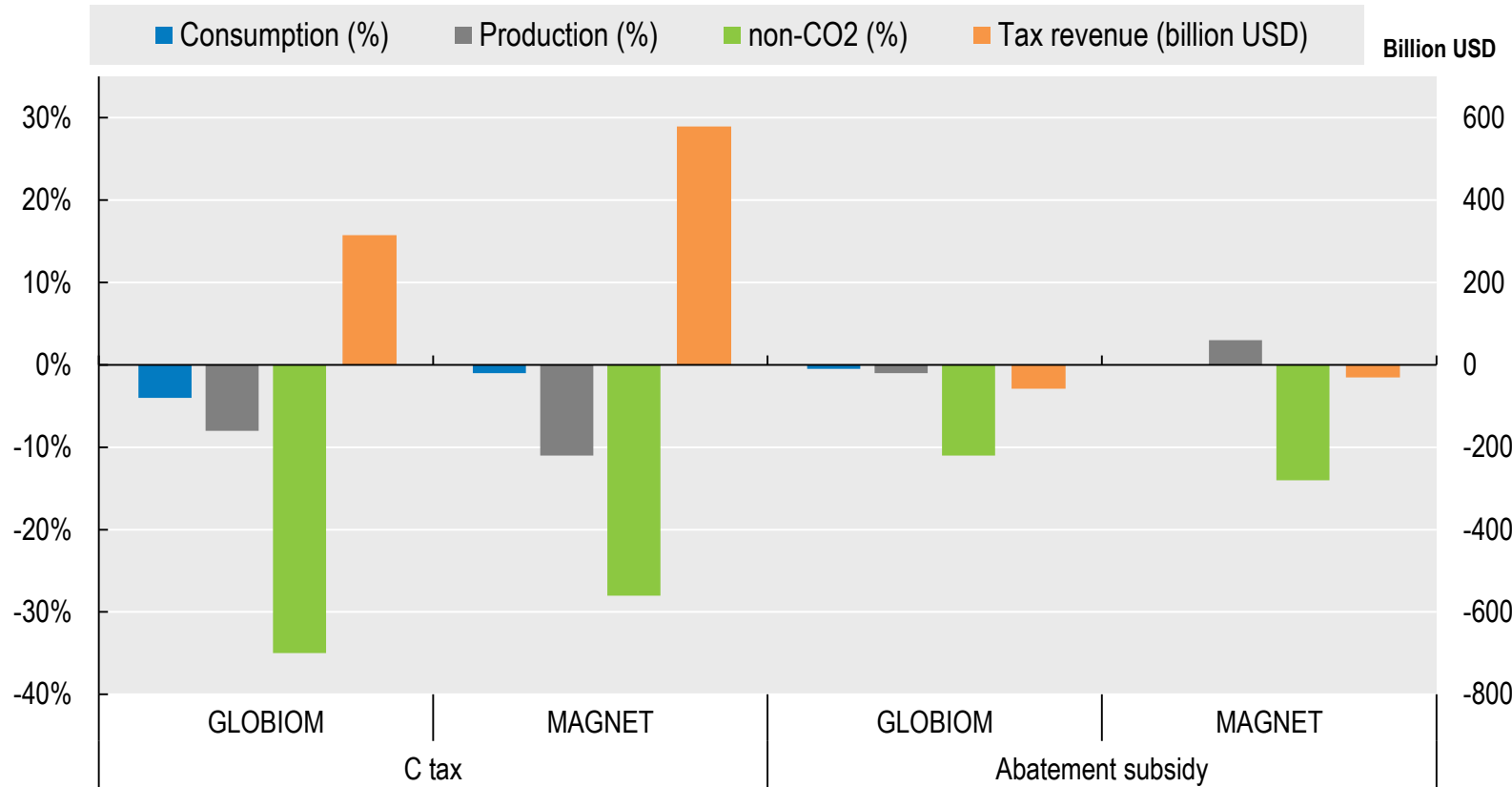
SCENARIO SETUPS

- **C price** reaches: USD 70 tCO₂e⁻¹ by 2050 in GLOBIOM; and 100 tCO₂e⁻¹ by 2050 in MAGNET
- **C tax** applied to non-CO₂ & CO₂ emissions; and **abatement subsidy** for soil C sequestration and afforestation
- **Dietary measures:**
 - reduction in animal product consumption in high-consuming regions to global average (GLOBIOM)
 - 10% reduction in the consumption of ruminant animal products
- **Food waste:** elimination of food waste by 2030



How do mitigation policies affect the “triple challenge” (food security, livelihoods, sustainability) ?

Supply-side policy impacts – Agriculture sector (2050)



Implications for government budgets (C prices consistent with 2°C goal)

- C taxes on agricultural emissions raises **320-570** billion USD
- Subsidy for abating agricultural emissions costs **30-60** billion USD

Note

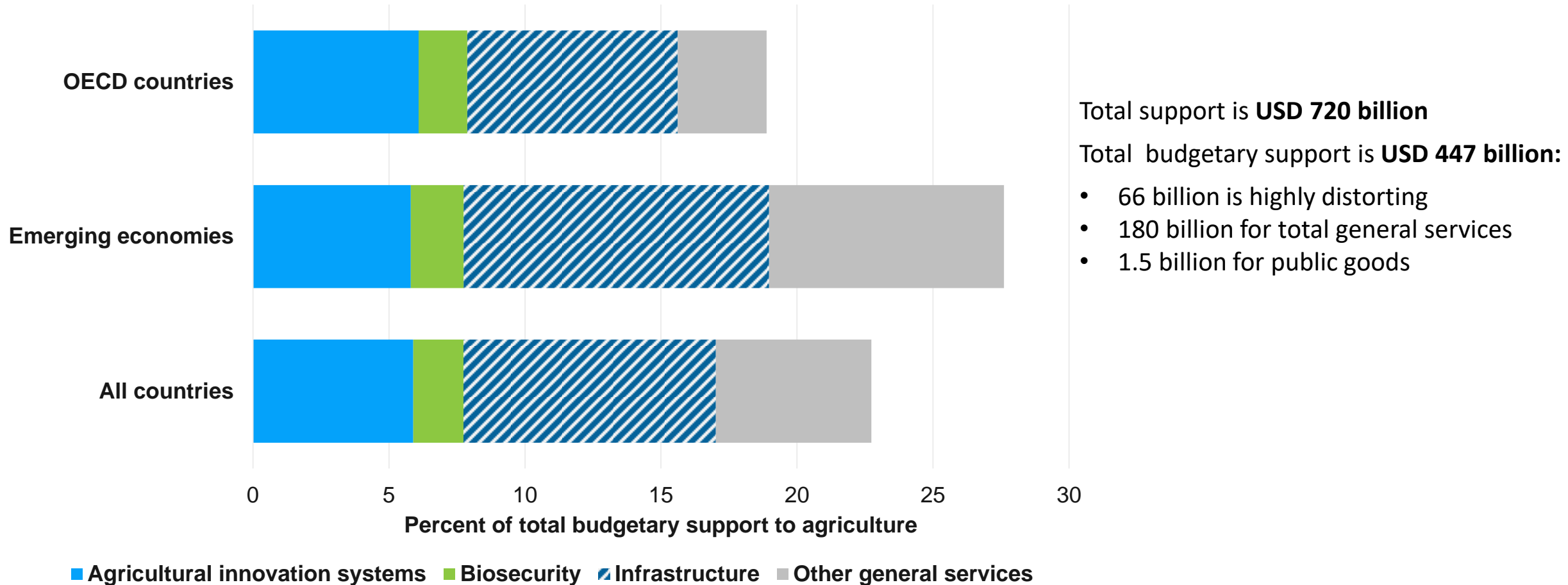
Consumption: change in kcal/day (GLOBIOM); change in food value at world prices (MAGNET).

Production: change in production value at world prices (GLOBIOM); change in value-added (MAGNET)



Current support policies could be better-aligned to serve the needs of food systems

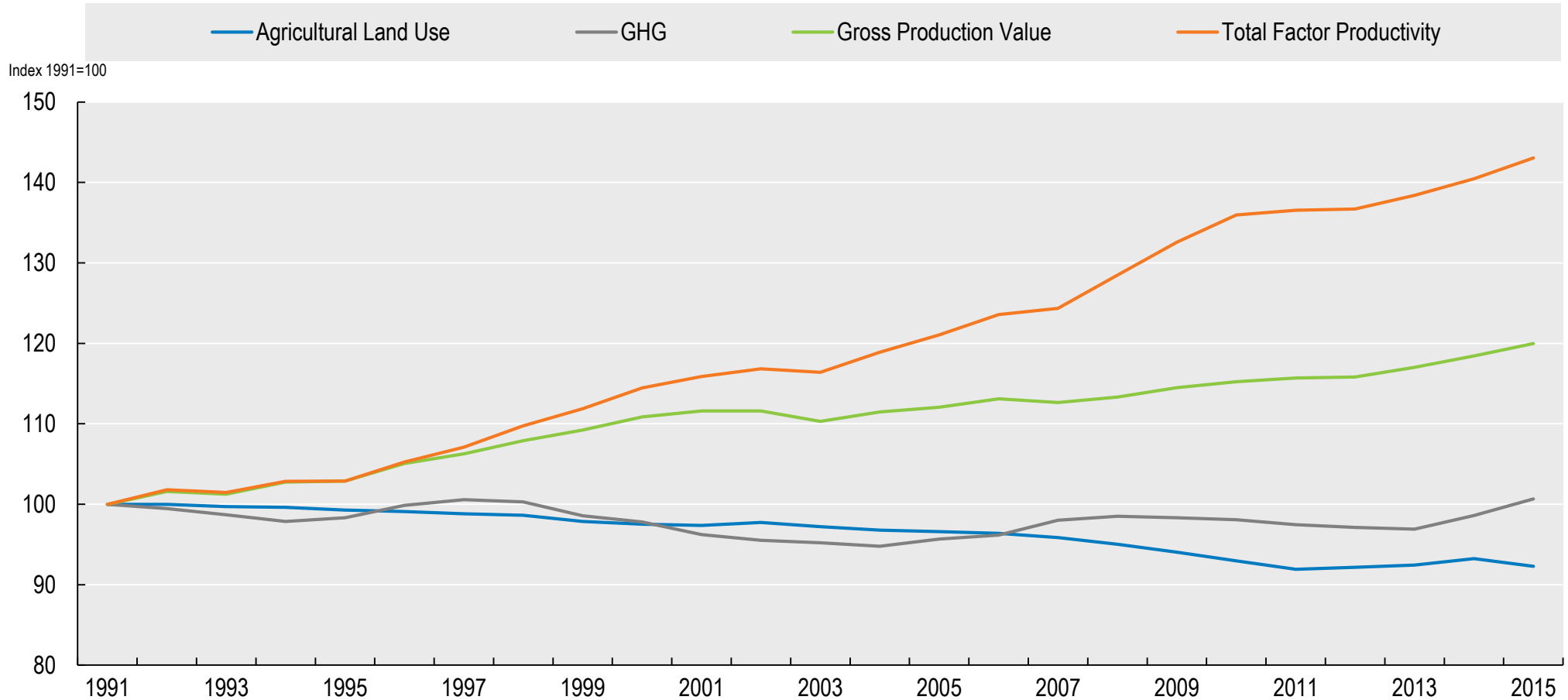
Just one in six budgetary dollars transferred to the sector is spent to support innovation (and 0.2% for public goods)





Productivity growth can help to decouple emissions from production and address the “triple challenge”

Agricultural productivity and environmental pressure





CONCLUSIONS



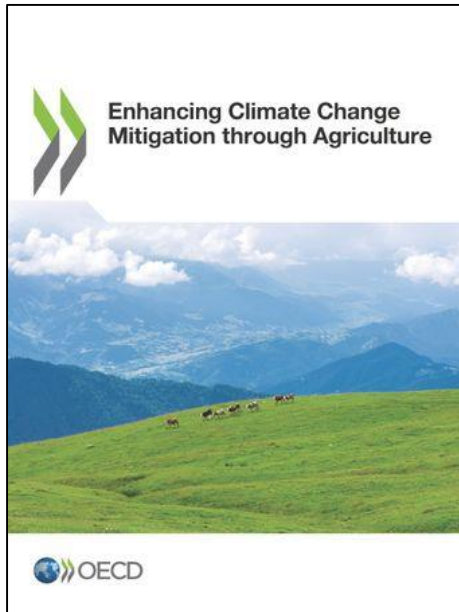
Exploring policy solutions to progress further

- Design, implement and scale up policy packages to:
 - incentivize lower emission production methods
 - “find the balance” between competing food system objectives
 - incentivize and invest in innovation for sustainable productivity and resilience
 - minimize food loss and waste & help consumers make more informed dietary choices
- Build mitigation into agricultural support – we can afford it!



THANK YOU

Main publications: www.oecd.org/agriculture

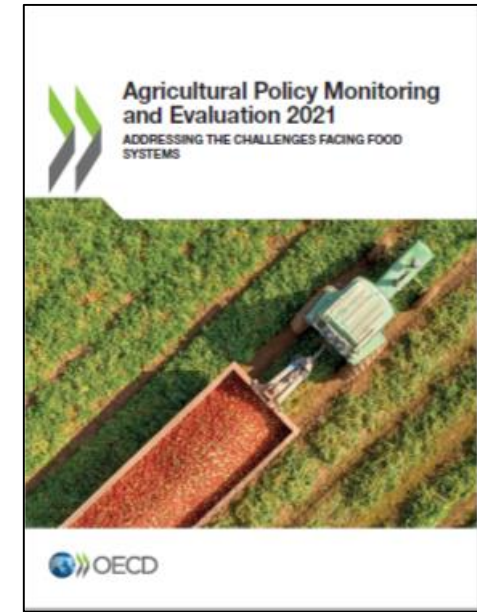


Henderson, B. et al. (2021), Policy strategies and challenges for climate change mitigation in the Agriculture, Forestry and Other Land Use (AFOLU) sector, OECD Publishing, Paris. <https://doi.org/10.1787/18156797>

OECD (2019), Enhancing Climate Change Mitigation through Agriculture, OECD Publishing, Paris, <https://doi.org/10.1787/e9a79226-en>

Henderson, B., C. Frezal and E. Flynn (2020), A survey of GHG mitigation policies for the agriculture, forestry and other land use sector, OECD Publishing, Paris. <https://doi.org/10.1787/59ff2738-en>

OECD (2021), Agricultural Policy Monitoring and Evaluation – Addressing the Challenges Facing Food Systems, OECD Publishing, Paris. <https://doi.org/10.1787/2d810e01-en>



Contact us by e-mail: tad.contact@oecd.org / Connect to us on Twitter: [@OECDagriculture](https://twitter.com/OECDagriculture)