



Measuring and Communicating Environmental Impacts in Food Supply Chains

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OECD work on food – some examples...

 **OECD-FAO Agricultural Outlook 2020-2029**


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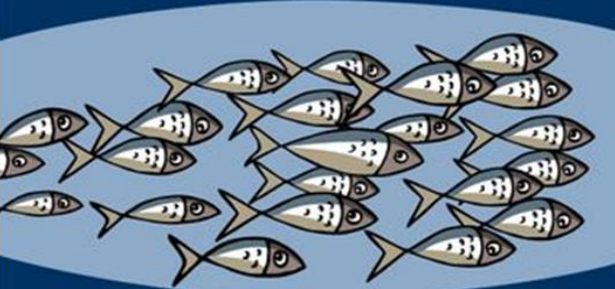
 **Making Better Policies for Food Systems**







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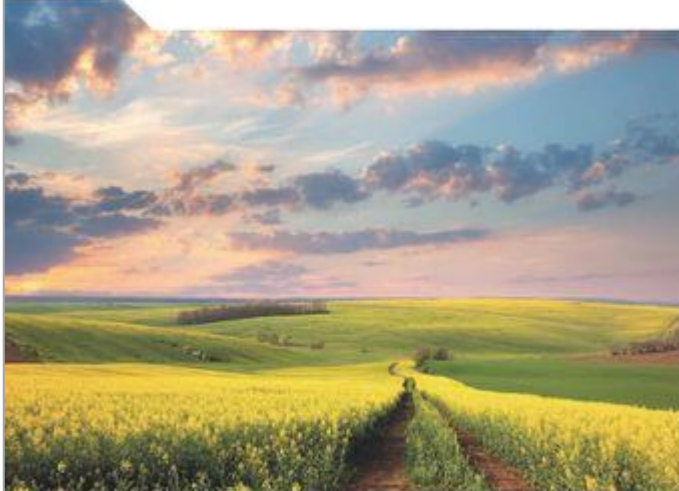
 **OECD Review of Fisheries 2020**






FAO Guidan
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 **The Political Economy of Biodiversity Policy Reform**





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Food and Agriculture
Organization of the
United Nations







Food systems exert important pressures on the environment

Land use

50%

of all ice- and desert-free land is used for agriculture

Deforestation

73%

of tropical and sub-tropical deforestation (2000-10)

Biodiversity loss

80%

of threatened land species are in danger due to habitat loss driven by agriculture

Water use

70%

of global freshwater use

Water pollution

78%

of global eutrophication

Global warming

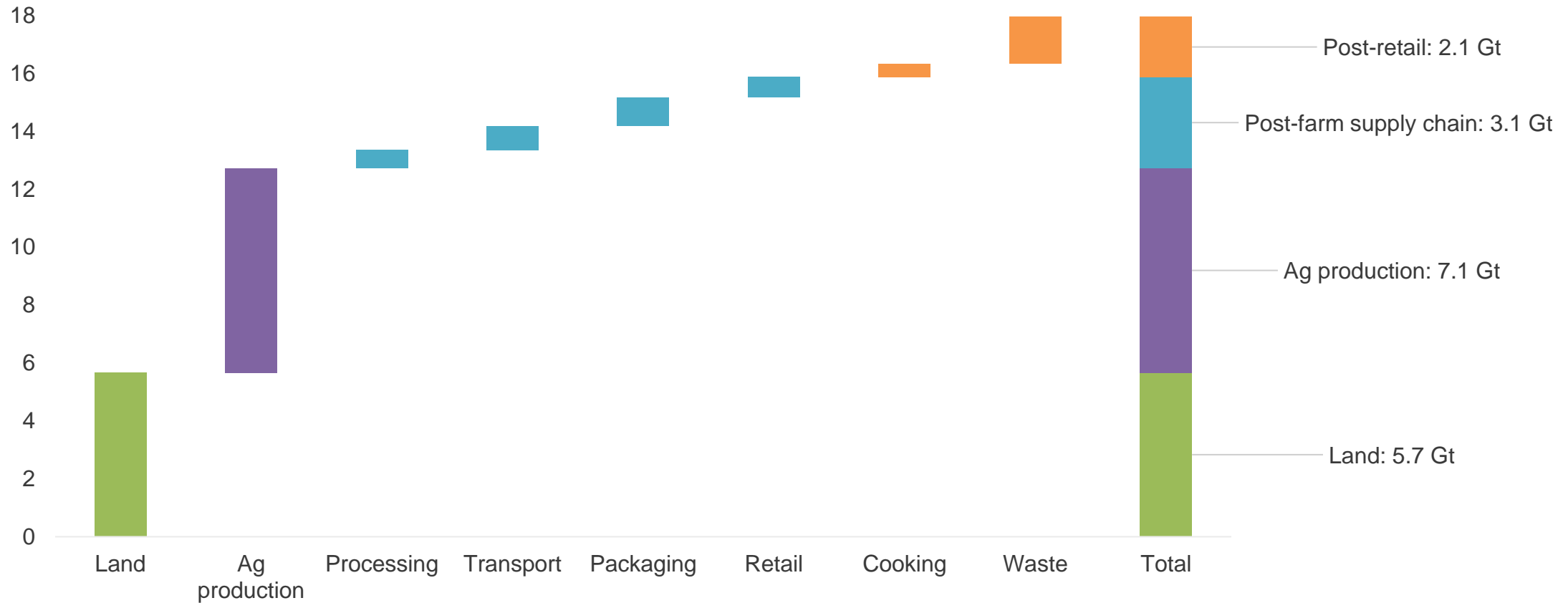
21-37%

of man-made GHG emissions



Globally, most food emissions occur through land use change and agricultural production

Food systems GHG emissions by supply chain stage, 2015

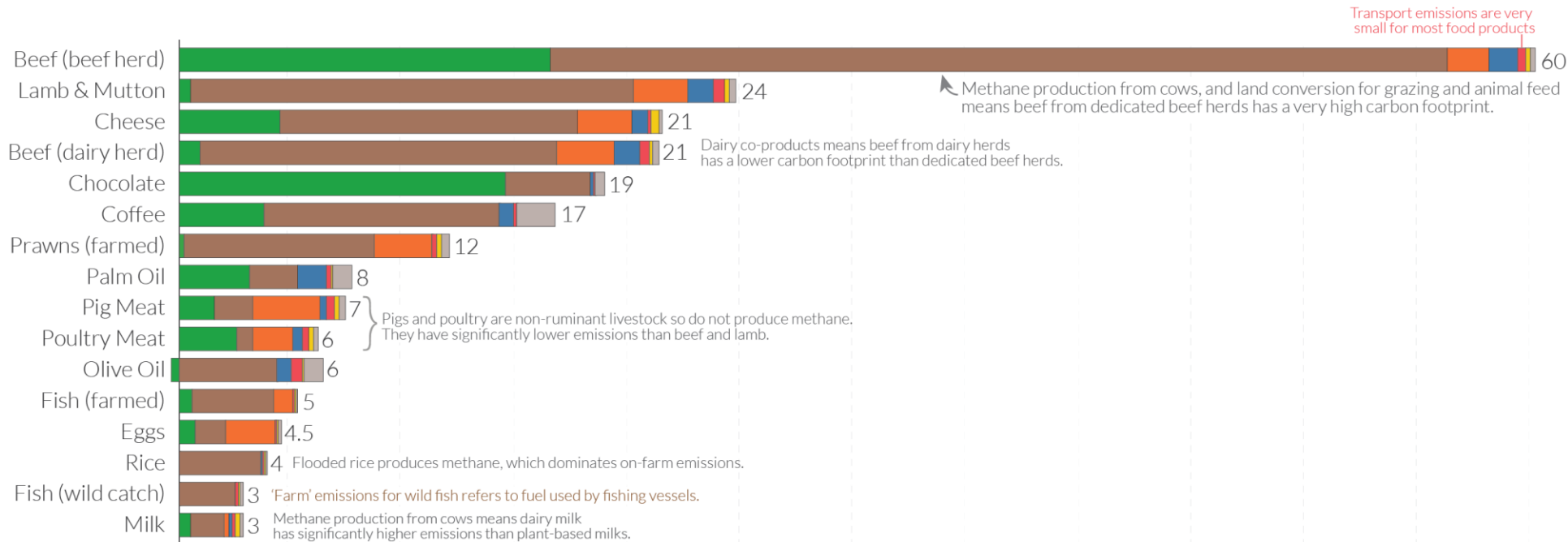
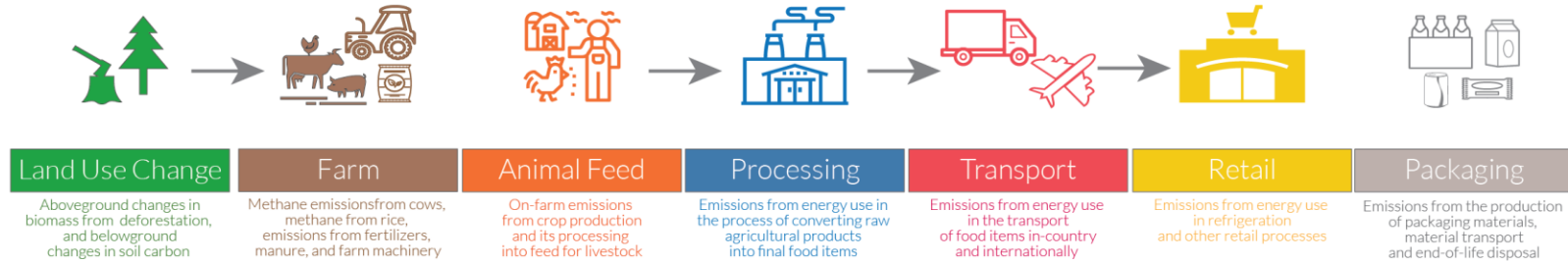


Source: Crippa et al. (2021), *Nature Food*. Also see Tubiello et al. (2021) and IPCC (2019)



Products differ strongly in terms of average impact

Food: greenhouse gas emissions across the supply chain





But there is also enormous variability across producers

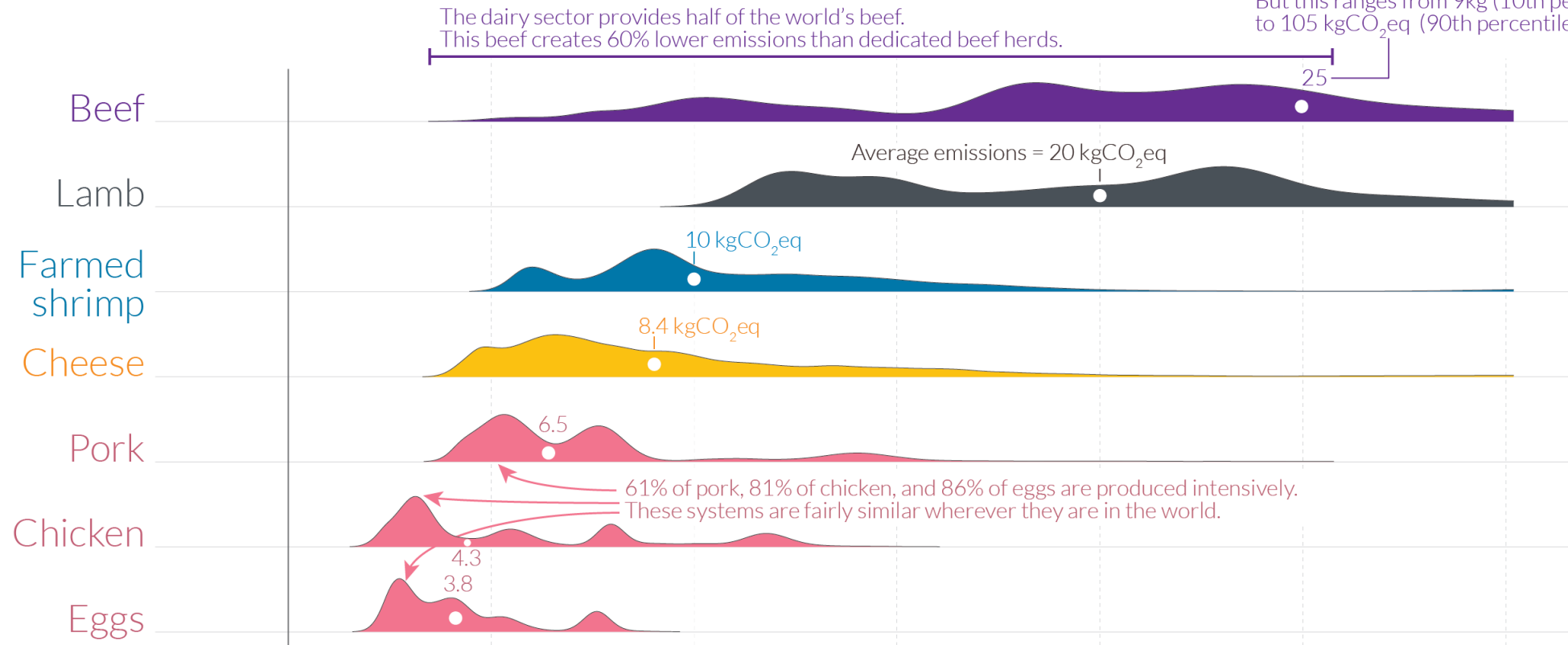
How does the carbon footprint of protein-rich foods compare?

Our World
in Data

Greenhouse gas emissions from protein-rich foods are shown per 100 grams of protein across a global sample of 38,700 commercially viable farms in 119 countries.

The height of the curve represents the amount of production globally with that specific footprint. The white dot marks the median greenhouse gas emissions for each food product.

Producing 100 grams of protein from beef emits 25 kilograms of CO₂eq, on average. But this ranges from 9kg (10th percentile) to 105 kgCO₂eq (90th percentile).

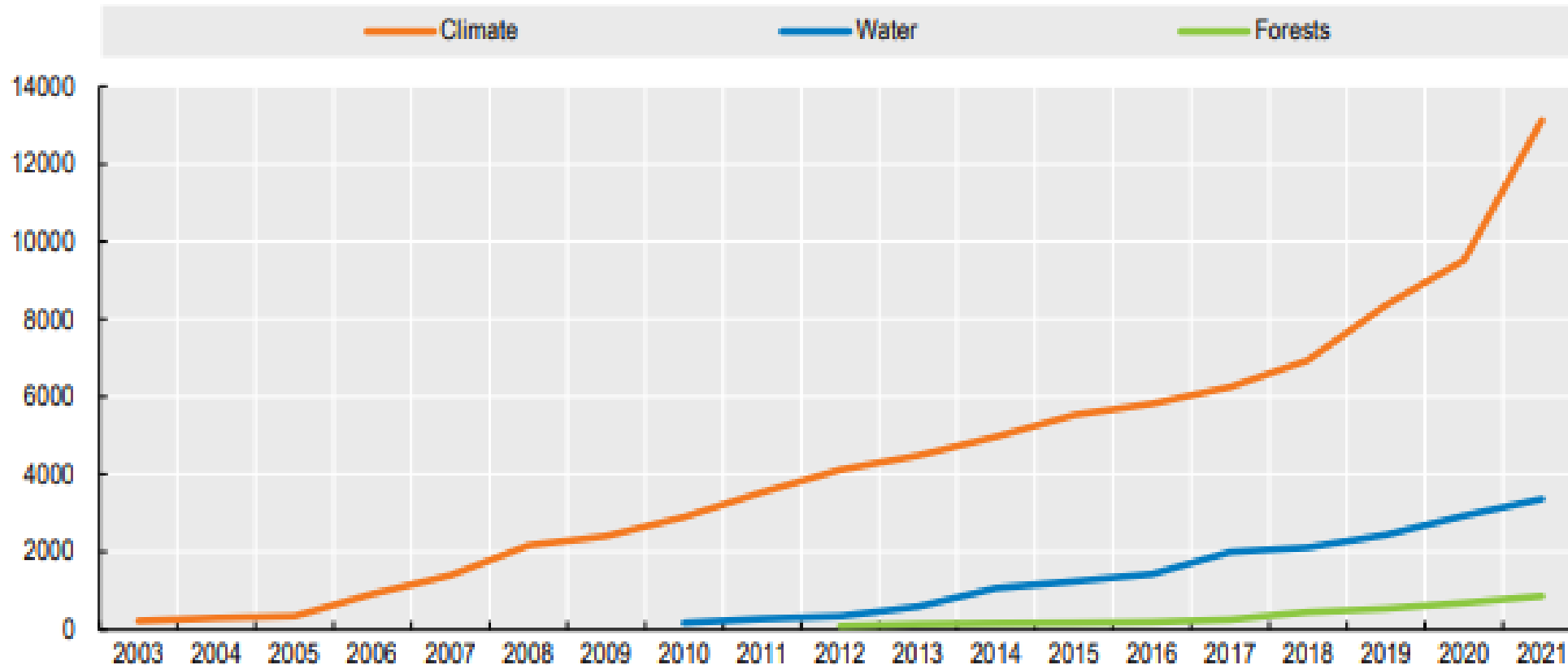




Firms are increasingly disclosing their environmental impact information



Number of firms disclosing climate, water, and forest impacts through CDP




... and again +42% growth in 2022

Note: Number of firms (across all sectors) disclosing impacts through CDP.
Source: CDP, www.cdp.net (accessed 23 March 2022).



There is also a growing emphasis on measuring and communicating carbon footprints in food systems



Impact grade label: MP54

Method: Farm to shelf

Certified on: 10/10/2022

Assessed for sale in:
United Kingdom

Ecological impact

Typical Value	Per 100	Per serving	Grade per serving
Carbon (CO ₂ eq)	136.00	543.00	B
Water Usage (L eq)	393.00	1,342.00	E
Water Pollution (PO ₄ ³⁻)	1.00	3.00	D
Biodiversity (Species Loss Index)	0.00	1.00	A



In short, we see strong growth of initiatives to measure and communicate environmental impacts...

COMET-Farm

NRCS USDA NR EL Colorado State University



Coordinated or fragmented?



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PACT PARTNERSHIP FOR CARBON TRANSPARENCY

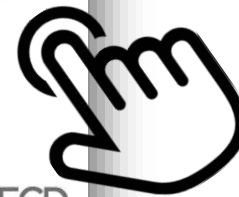
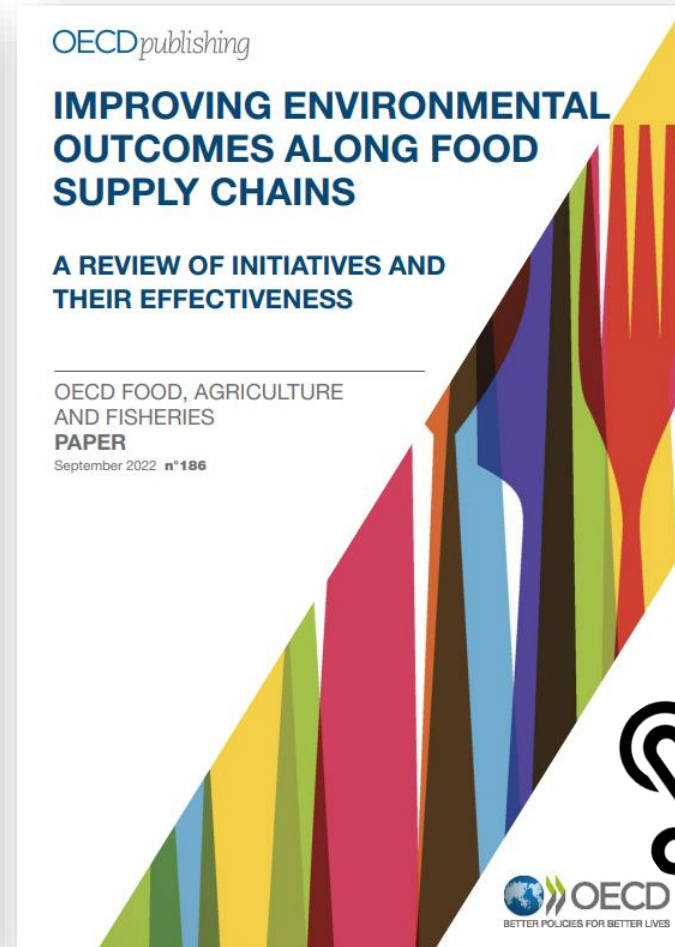
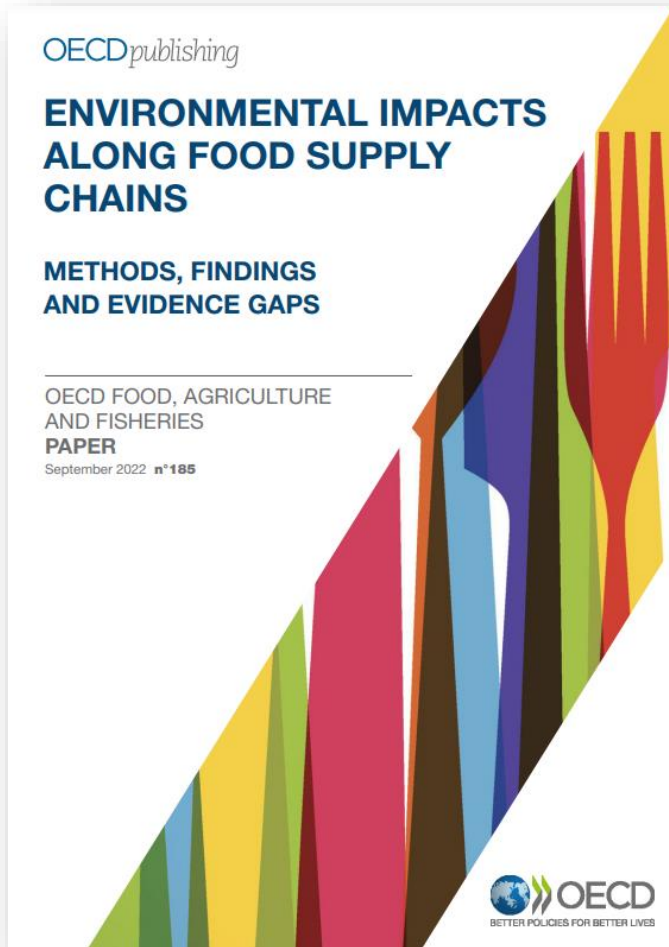


Our work in 2023-24 focuses on the following questions

- **How can we measure carbon footprints in food systems?**
 - What are the different methodologies? Are these (in)consistent? Is there room for alignment?
 - How can carbon footprint information be shared easily and reliably along the supply chain?
 - How can we reduce transaction costs while maintaining precision?
- **How can we communicate environmental impacts to consumers?**
 - What are the different labels? Which types of environmental impacts do they cover?
 - Are labels effective in changing consumer behaviour?
 - Is there a risk of fragmentation and confusion?
- Forthcoming paper: ***“Fast and furious: the rise of environmental impact reporting in food systems”*** (Summer 2023)



Further reading...



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