AXA

Vision
CRAFTING THE FUTURE

Autostrada del Brennero SpA
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The Second Dolomite Conference on the Global Governance of Climate Change

A NEW HOPE FOR CLIMATE

Actions Beyond Words

5.6.7
OTTOBRE 2023
TRENTO

8
OTTOBRE 2023
BOLZANO

Institutional Endorsement: European Parliament; Provincia Autonoma di Trento
Locality Partner: Trentino
Scientific Partner: Politecnico Milano 1863; Università Bocconi Milano; Blavatnik School of Government; University of Oxford; Università di Trento
Media Partner: sky news عربية; Rai Radio 1
Technical Partner: Hokuto
Charity Partner: EMERGENCY
Thanks to: Gruppo Dolomiti energia; SALEWA

TOWARDS A ZERO EMISSION PRIMARY SECTOR/ AGRIFOOD
Introduction

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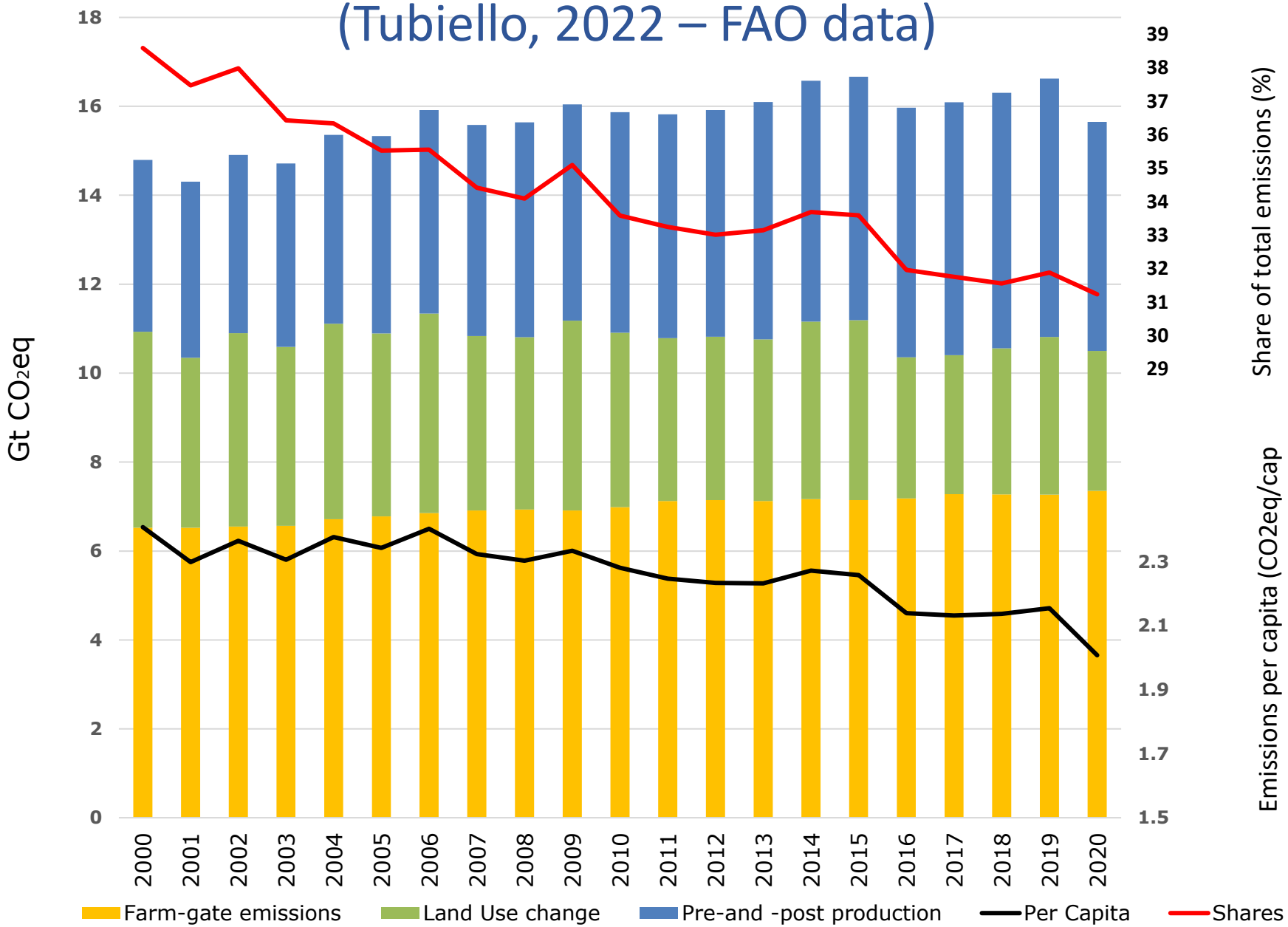
The contribution of the agri-food system to GHGs emissions

Highlights from FAO 2021 report (1990-2019)

- The share of agri-food emissions on total global emissions has decreased in the last 20 years (39 to 31%).
- Agri-food emissions, however, increased by 16% since 1990.

Emissions statistics and indicators, 2000-2020

(Tubiello, 2022 – FAO data)



The agricultural system is also facing the consequences of climate change

Heat waves,
climate variability,
water scarcity,
floods,
storms,
soil erosion, …

pose a threat to the ability of agriculture to produce enough food and other services and call for adaptation strategies.

The contribution of the agri-food system to GHGs emissions

Highlights from FAO 2021 report (1990-2019)

- The share of agri-food emissions on total global emissions decreased in the last 20 years (39 to 31%).
- Agri-food emissions increased by 6% since 2000.

- CO_2 from farm management and pre-and post-production
- CO_2 from net forest conversion (land use change)
- CH_4 from enteric fermentation (animal husbandry) and rice paddies
- N_2O from synthetic fertilizers, manure and crop soils

Main measures towards a reduction of net emissions in the agri-food sector (zero emissions?)

- To reduce emissions within the farm gate and in the post-production phase
- To enhance the amount of atmospheric-C sequestered in soil(plants)
- To modify food consumption habits (diet/waste)

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Reduce emissions within the farm gate and in the pre-post-production phase

- Technological (precision, digital, smart,…) innovations to reduce those means of production, mainly responsible for the emissions.
- More energy from renewable sources.
- Biological and system innovations (e.g. cropping systems, fodder types) to reduce the emissions from microbes/plants/animals.
- Genetic innovations: new plant genotypes with lower needs for external input; new animal races with lower CH_4 emissions rates.
- Novel packaging types
- Short food supply chains

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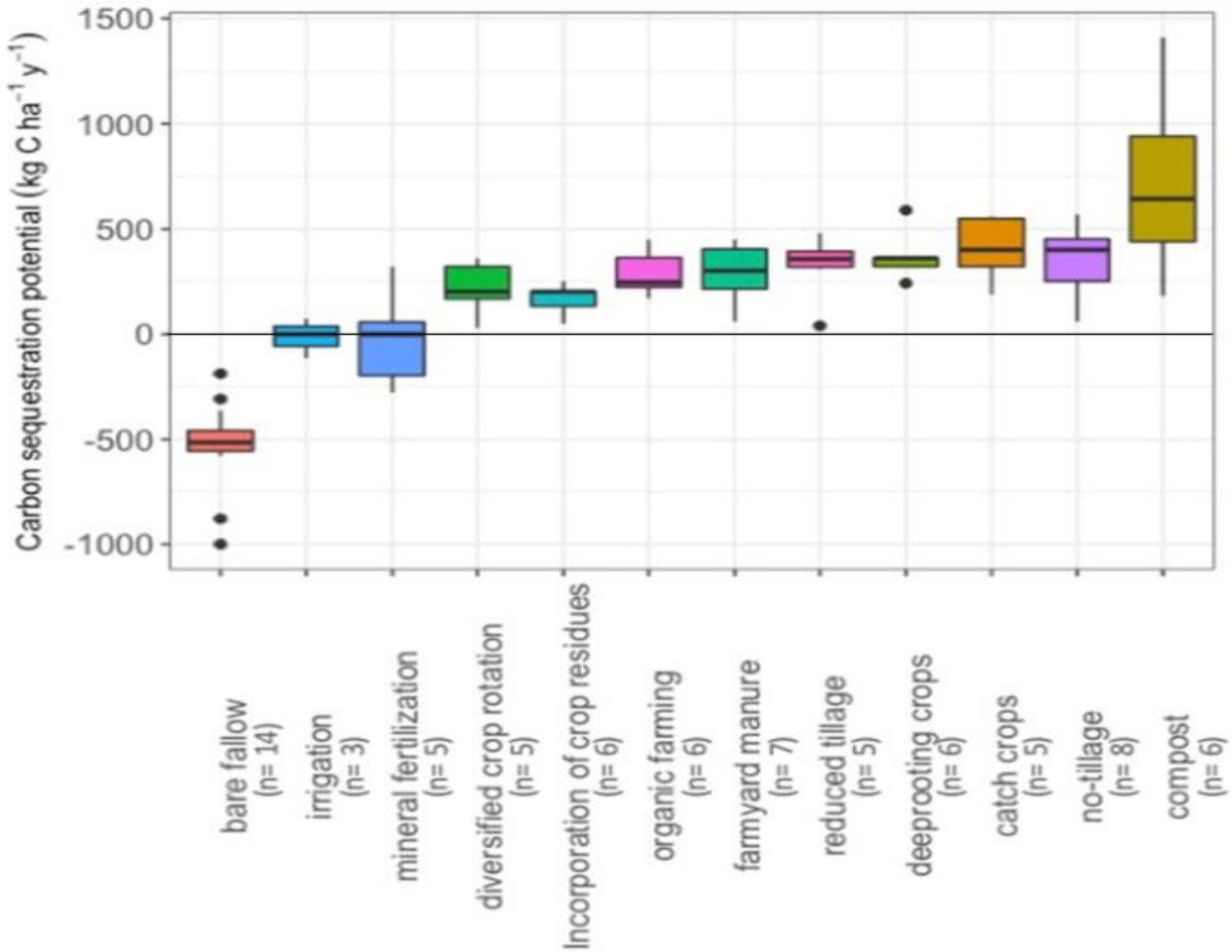
Carbon sequestration potential of management practices in croplands

(Tiefenbacher et al., 2021)



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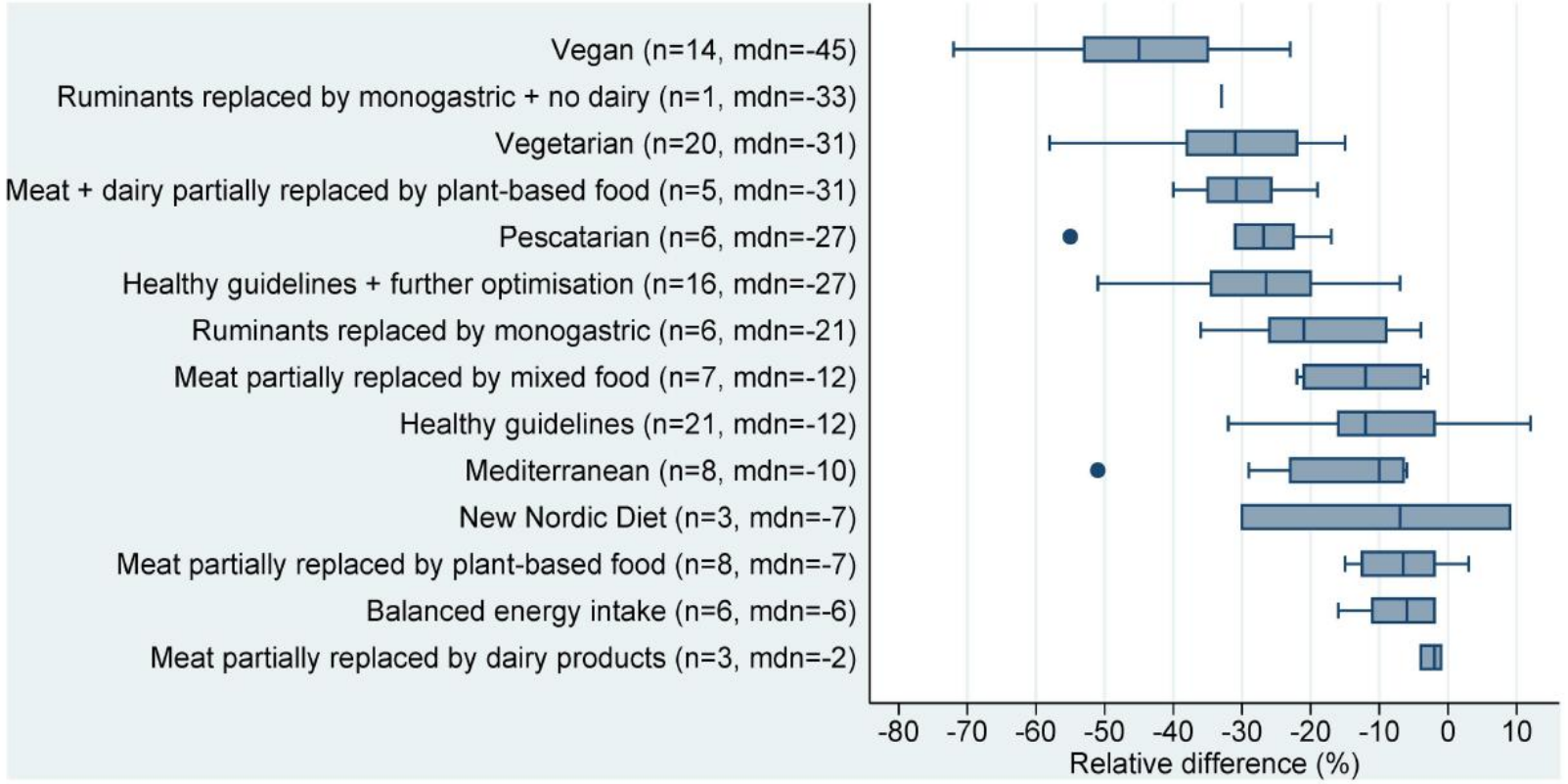

Fig 2. Relative differences in GHG emissions (kg CO_2eq/capita/year) between current average diets and sustainable dietary patterns. Note: n = number of studies, mdn = median.

doi:10.1371/journal.pone.0165797.g002

Aleksandrowicz et al., 2016

Food for thought

Some open questions

- Should food production per unit of land/animal be enhanced to reduce the carbon footprint of the single unit of agricultural produce?
- Does organic farming represent one of the best approaches toward zero emissions?
- To which extent will future actions aimed at reducing the net emissions be effective, given the growing world population and the already-occurring effects of climate change on biological systems?
- What can be learned from local initiatives aimed at lowering the C-emissions?

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