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Diets and dietary scenarios in food system modelling

FQH Seminar, November 17, 2023

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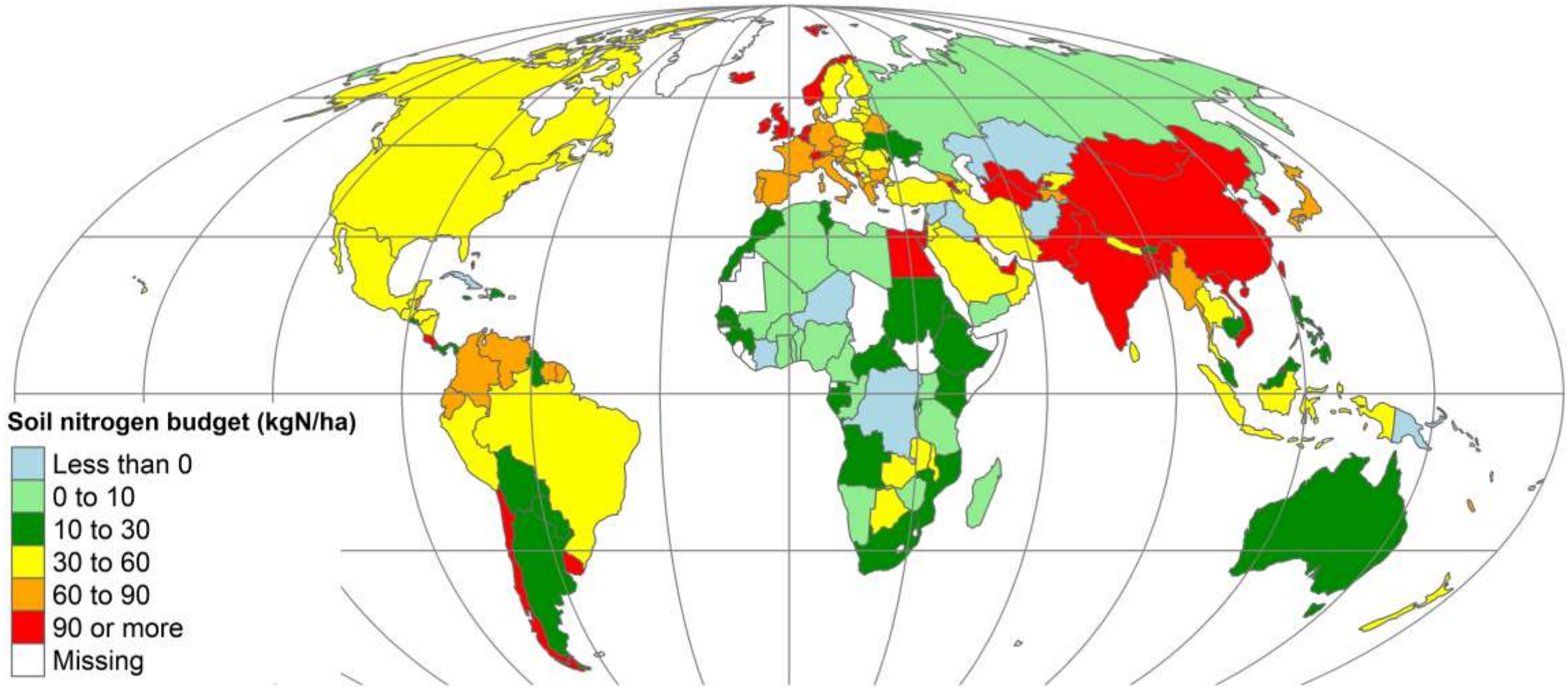
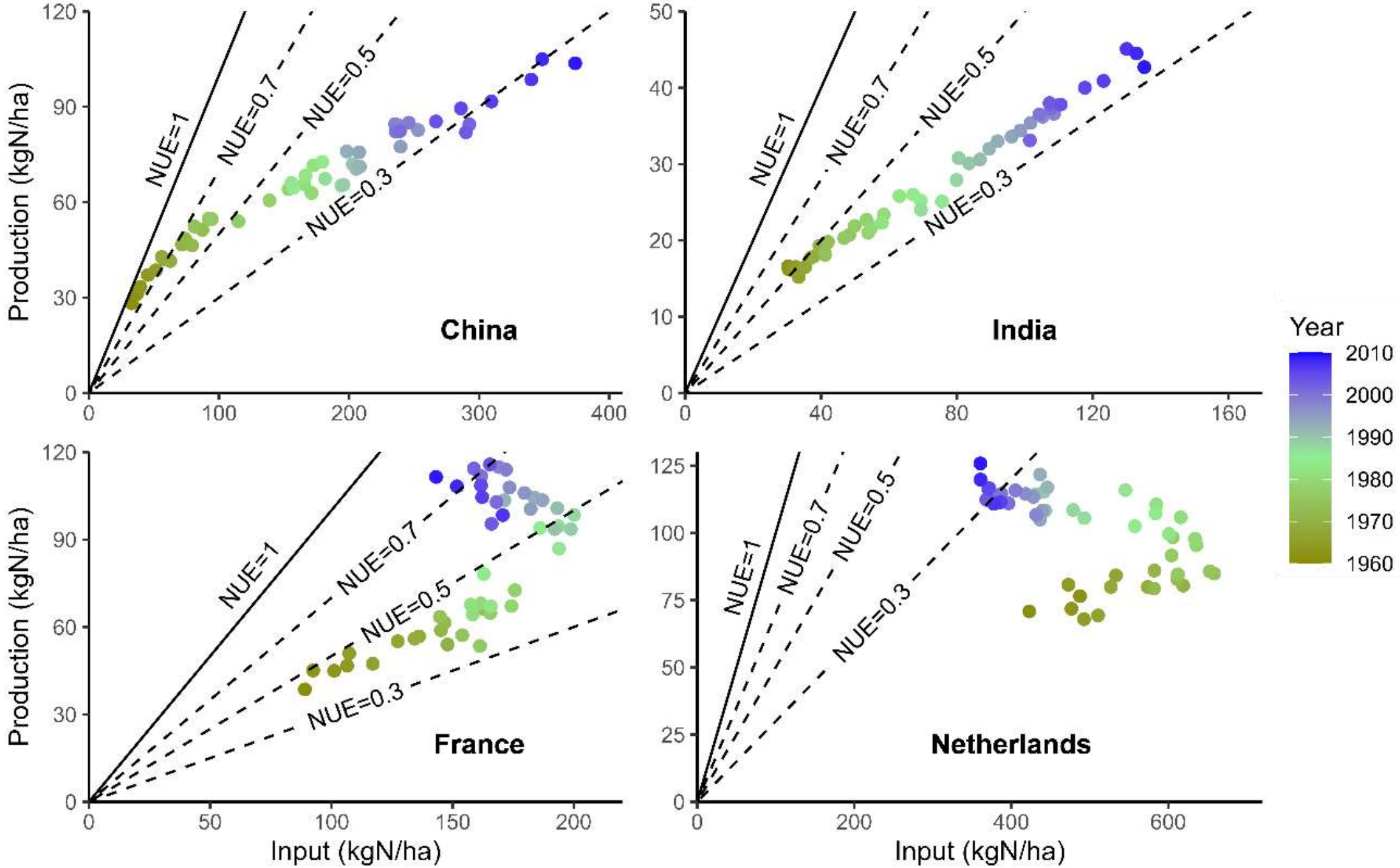


based on data from Ludemann et al. 2023



based on data from Lassaletta et al. 2014

https://www.agridea.ch/de/themen/umwelt-und-landwirtschaft/der-oekologische-leistungsnachweis-oeln/

Der ökologische Leistungsnachweis ÖLN

Die zahlreichen ökologischen Leistungen, welche die Betriebe erbringen, werden mit Direktzahlungen abgegolten.

Da die Regelungsdichte in den letzten Jahren immer mehr zugenommen hat, wird es zur grossen Herausforderu die Bauernfamilien, den Überblick zu behalten und ihrer Nachweispflicht nachzukommen.

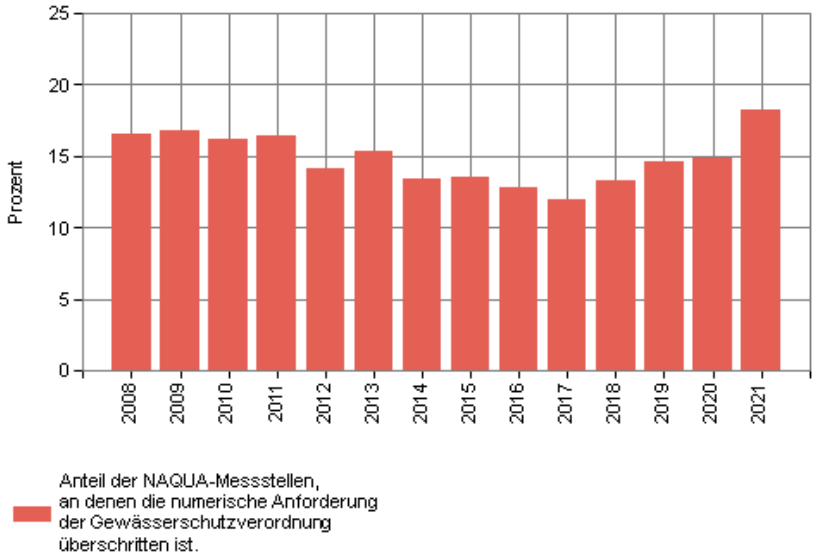
Auch Beratungs- und Kontrollpersonen sind gefordert. AGRIDEA unterstützt die Landwirtinnen und Landwirte in ih Bestreben, nachhaltig zu produzieren und stellt hierfür praxistaugliche Instrumente bereit. Den Betrieben, den Beratungs- und Kontrollstellen stehen zahlreiche Formulare, Software-Programme und Merkblätter zur Verfügung.

Der ÖLN auf der Website des BLW

Erklärvideo ÖLN - AGRIDEA

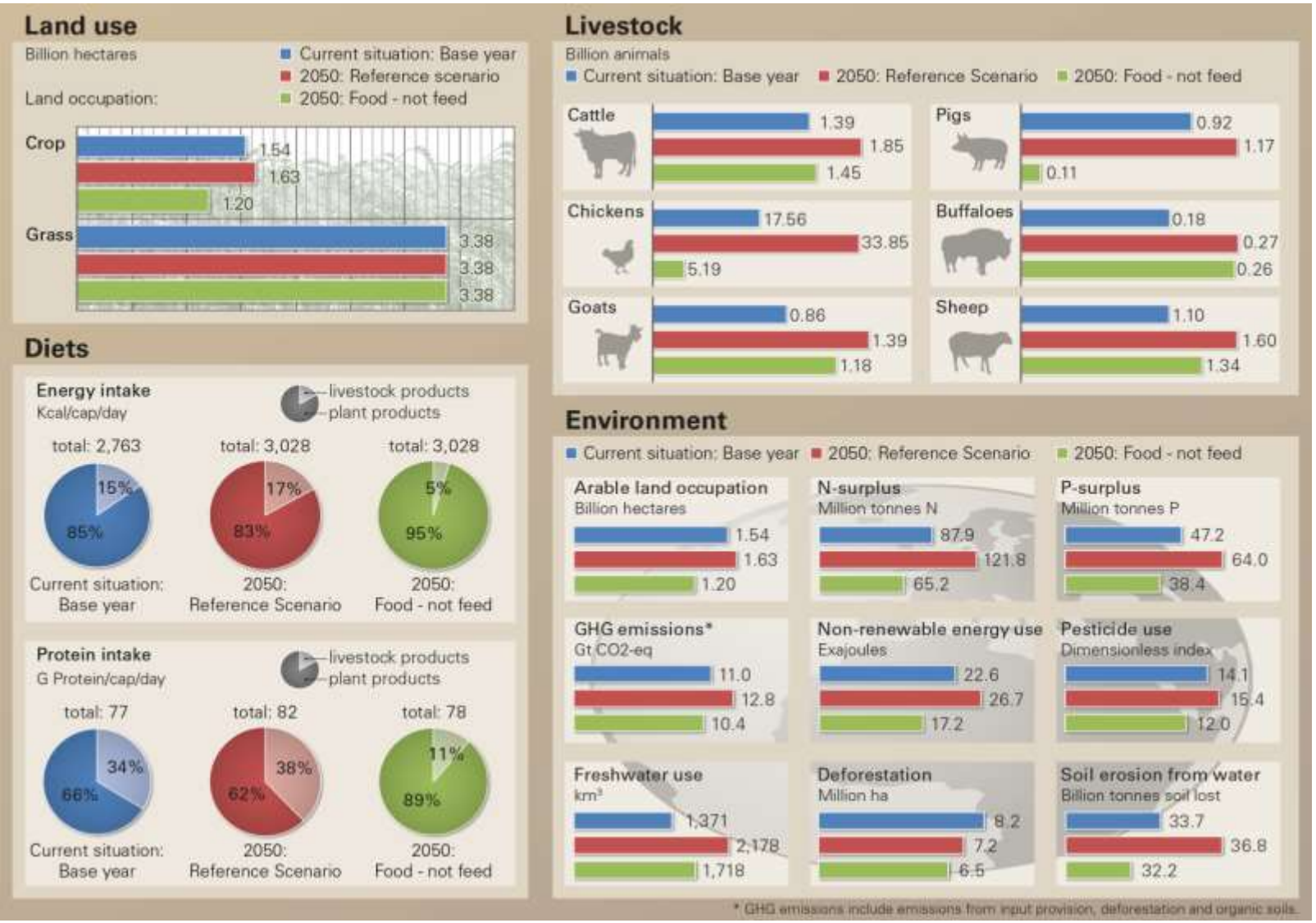
Bewertung des Zustandes schlecht
Bewertung der Entwicklung negativ

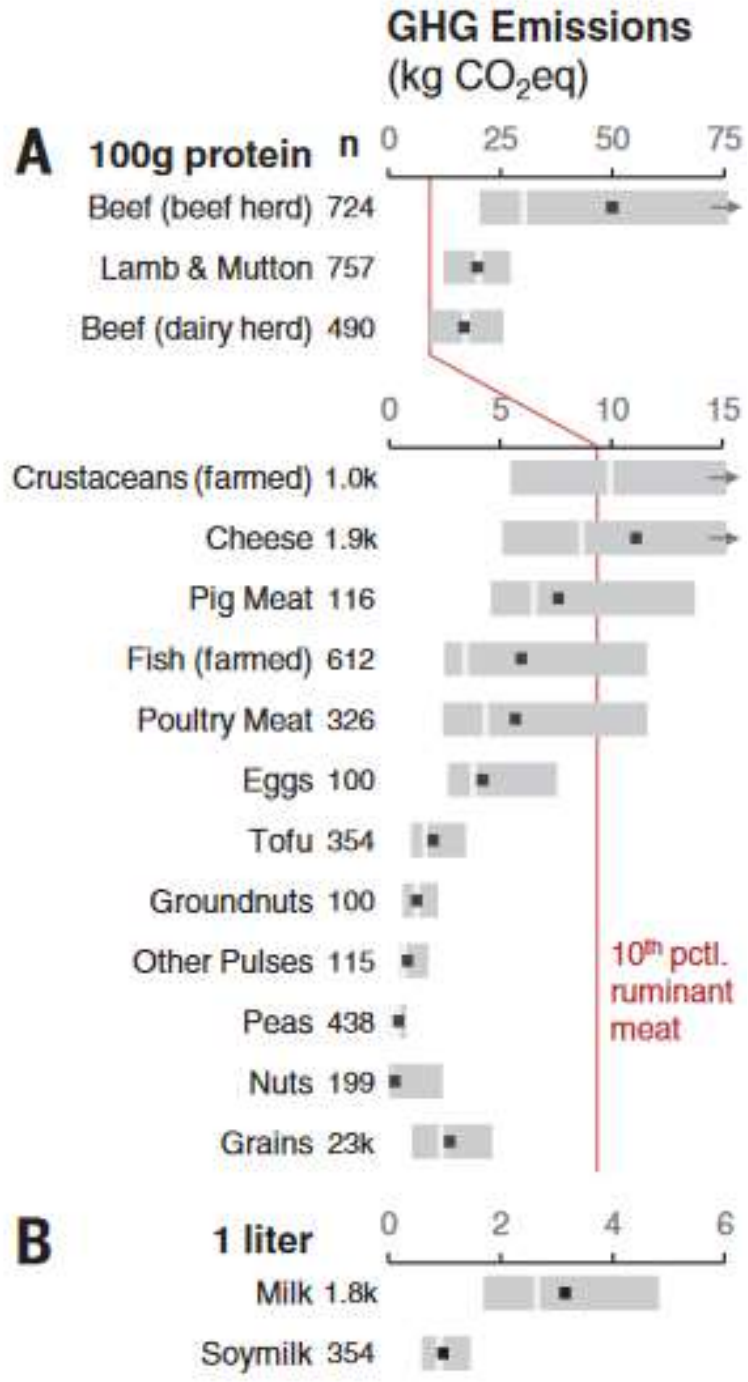
Zeitreihe



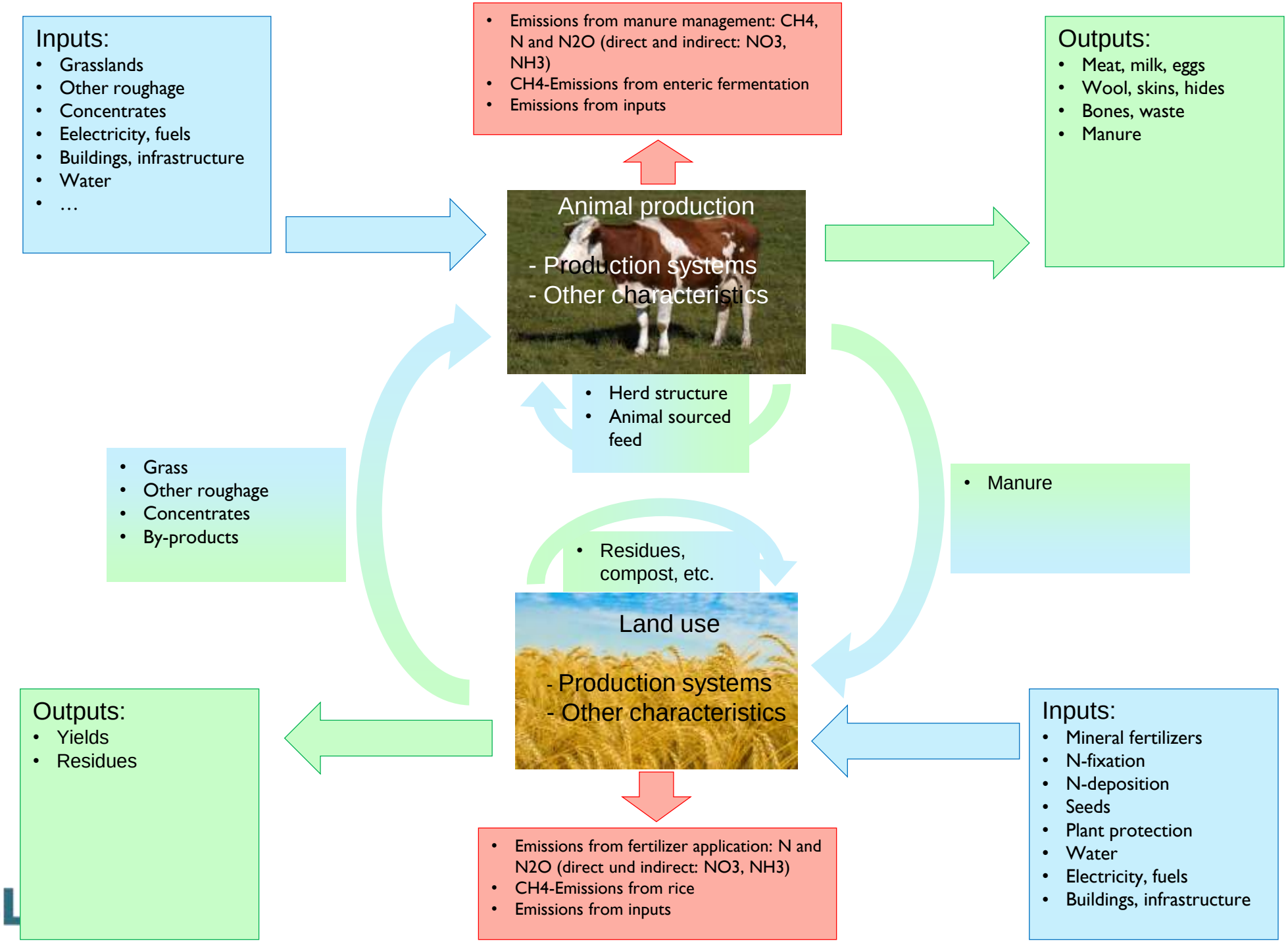
Biodiversität und Landschaft	Luft und Klima	Wasser	Boden
Biodiversität	Treibhausgase	Nitrat	Schadstoffe
Landschaft	Stickstoffhaltige Luftschadstoffe	Phosphor	Bodenerosion
Gewässerraum	Dieselruss	Pflanzenschutzmittel	Bodenverdichtung
		Tierarzneimittel	

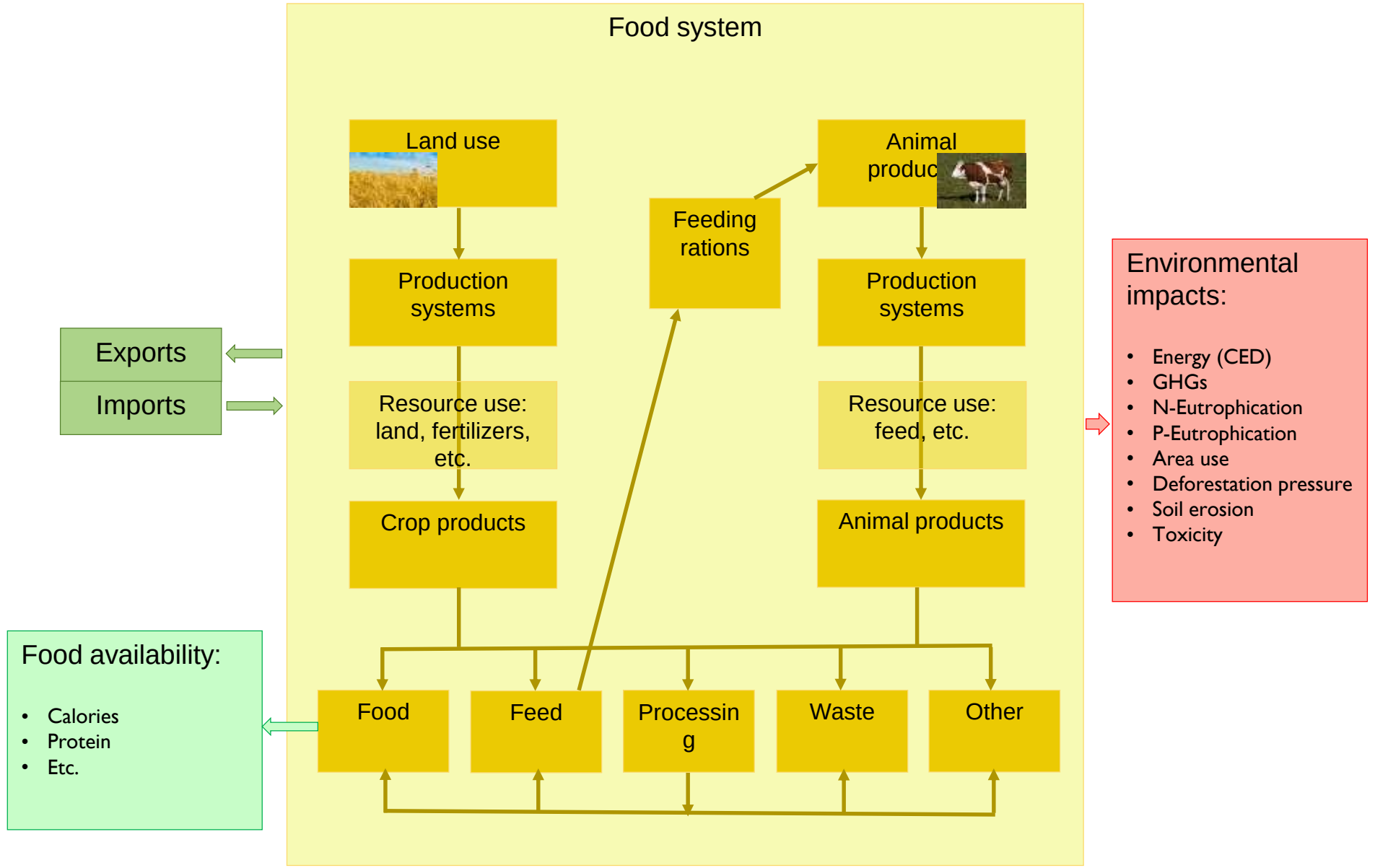
Legende Zielerreichung: = gut = nicht gesetzeskonform = keine Verschlechterung

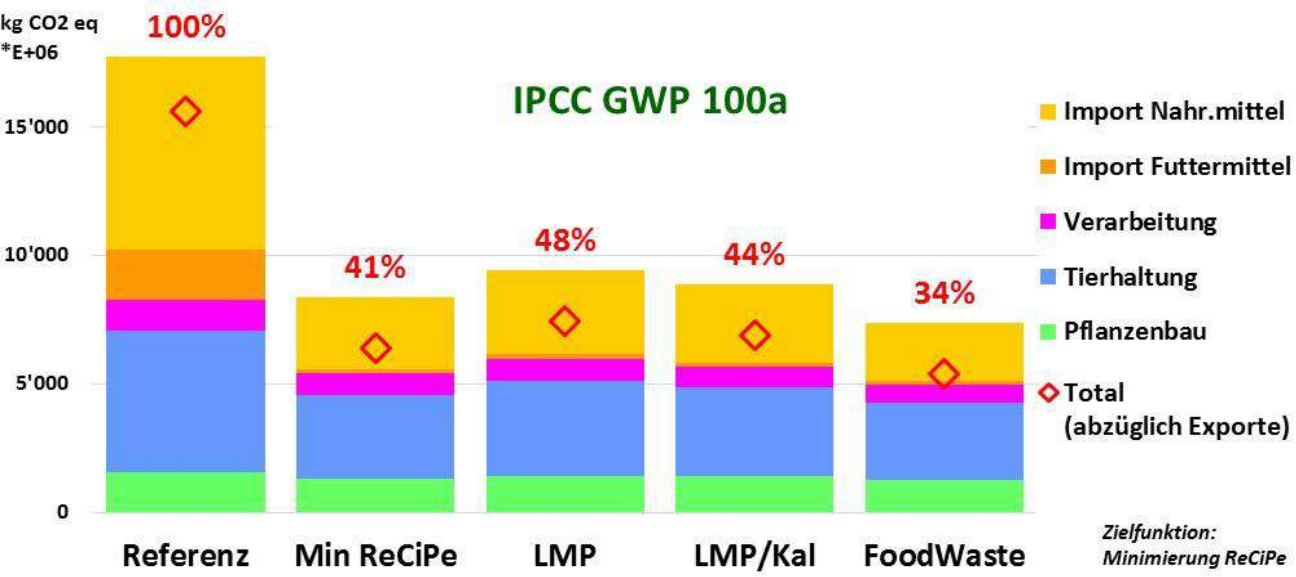


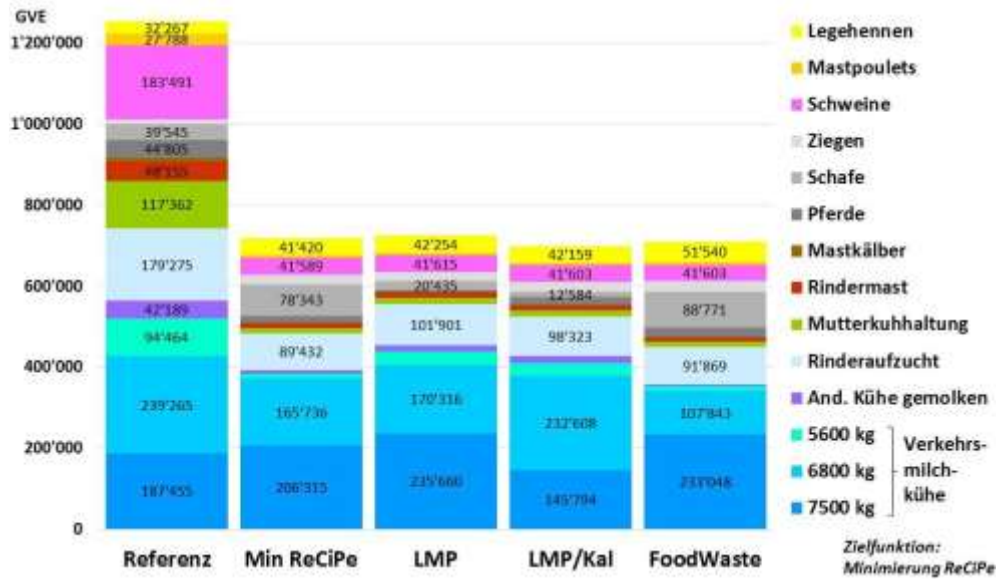


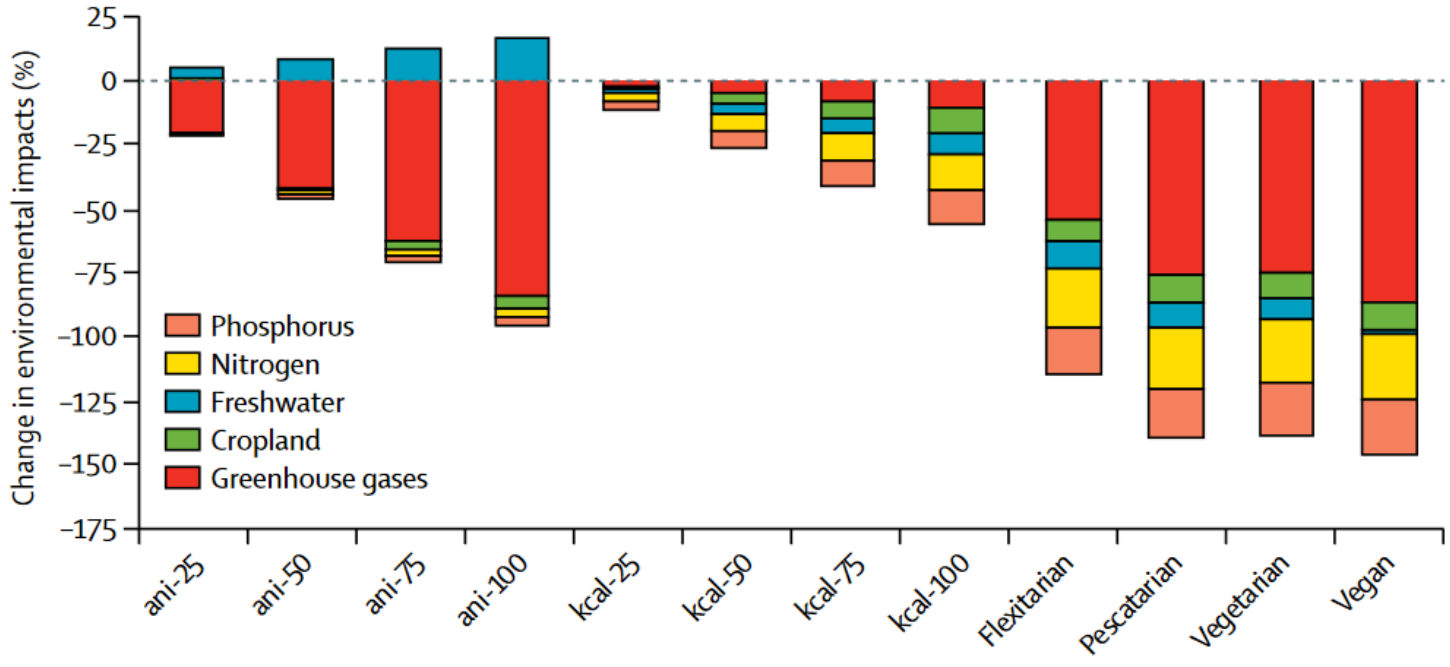
Poore and Nemecek 2018, Schader et al. 2015


Inputs:
• Grasslands
• Other roughage
• Concentrates
• Eelectricity, fuels
• Buildings, infrastructure
• Water
• …
• Emissions from manure management: CH4, N and N2O (direct and indirect: NO3, NH3)
• CH4-Emissions from enteric fermentation
• Emissions from inputs
Outputs:
• Meat, milk, eggs
• Wool, skins, hides
• Bones, waste
• Manure
Animal production
- Production systems
- Other characteristics
• Herd structure
• Animal sourced feed
• Grass
• Other roughage
• Concentrates
• By-products
• Manure
• Residues, compost, etc.
Land use
- Production systems
- Other characteristics
Outputs:
• Yields
• Residues
• Emissions from fertilizer application: N and N2O (direct und indirect: NO3, NH3)
• CH4-Emissions from rice
• Emissions from inputs
Inputs:
• Mineral fertilizers
• N-fixation
• N-deposition
• Seeds
• Plant protection
• Water
• Electricity, fuels
• Buildings, infrastructure

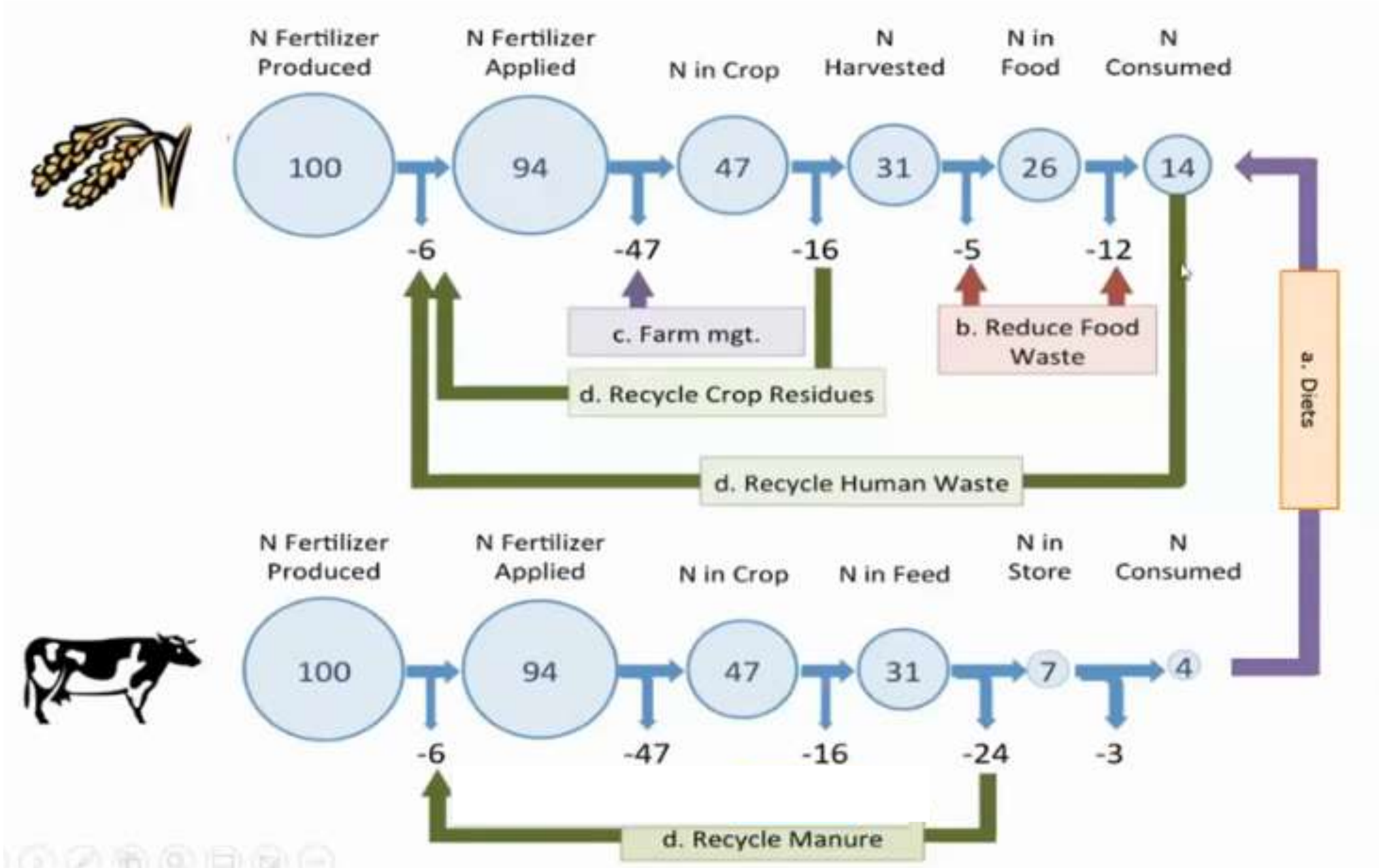

Food system
Land use
Animal produc
Feeding rations
Production systems
Production systems
Exports
Imports
Resource use: land, fertilizers, etc.
Resource use: feed, etc.
Crop products
Animal products
Environmental impacts:
• Energy (CED)
• GHGs
• N-Eutrophication
• P-Eutrophication
• Area use
• Deforestation pressure
• Soil erosion
• Toxicity
Food availability:
• Calories
• Protein
• Etc.
Food
Feed
Processing
Waste
Other







Zimmermann et al. 2017; Springmann et al. 2018



From De Vries 2023

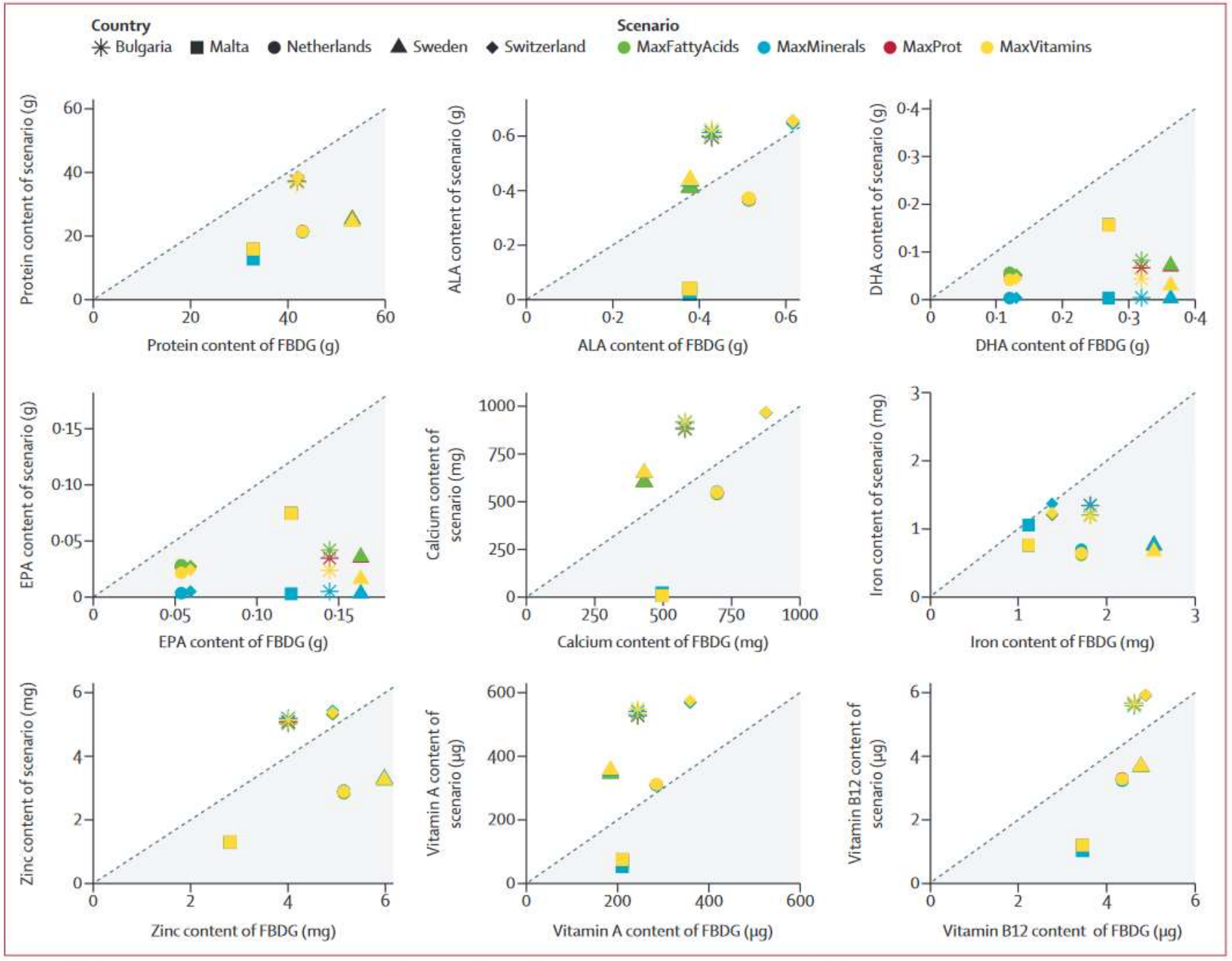
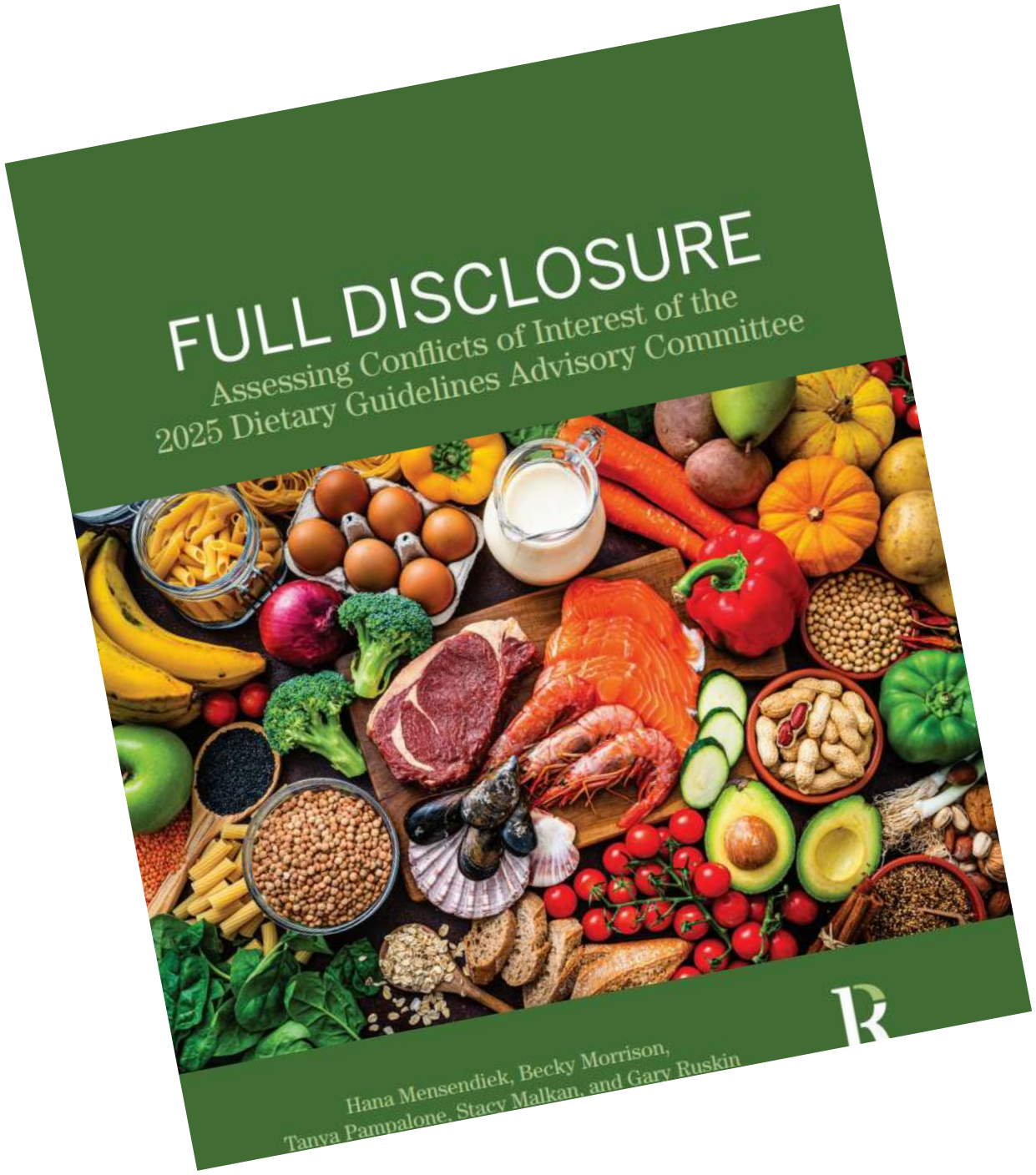


Figure 2: **Nutrients of the animal products in the original food-based dietary guidelines versus nutrients of the animal products in the scenarios and countries per capita per day**

Frehner et al. 2022



sge Schweizerische Gesellschaft für Ernährung
ssn Société Suisse de Nutrition
ssn Società Svizzera di Nutrizione

atupri
Der Gesundheitsversicherer

coop

DANONE

DSM

eldora
GROUPE

Emmi

Helsana
Engagiert für das Leben.

HUNZIKER

menuandmore
Weil Kinder das Grösste sind!

MIGROS

Nestlé

selecta

Schweizer Fleisch

SUISSE GARANTIE
SCHWEIZ SVIZZERA SWITZERLAND

zfv Die Gastronomiegruppe

Some concluding remarks

- What are the footprints of a commodity from within a full systems perspective?
  - What are the nutritional contents of a commodity from a full processing perspective (e.g. tofu)

- How is the commodity supply determined by agronomic aspects?
  - Circularity (e.g. also increased cattle from temporary grasslands in organic Sri Lanka)

Contact

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