SUSFANS

Current status of environmental and economic sustainability of EU food supply

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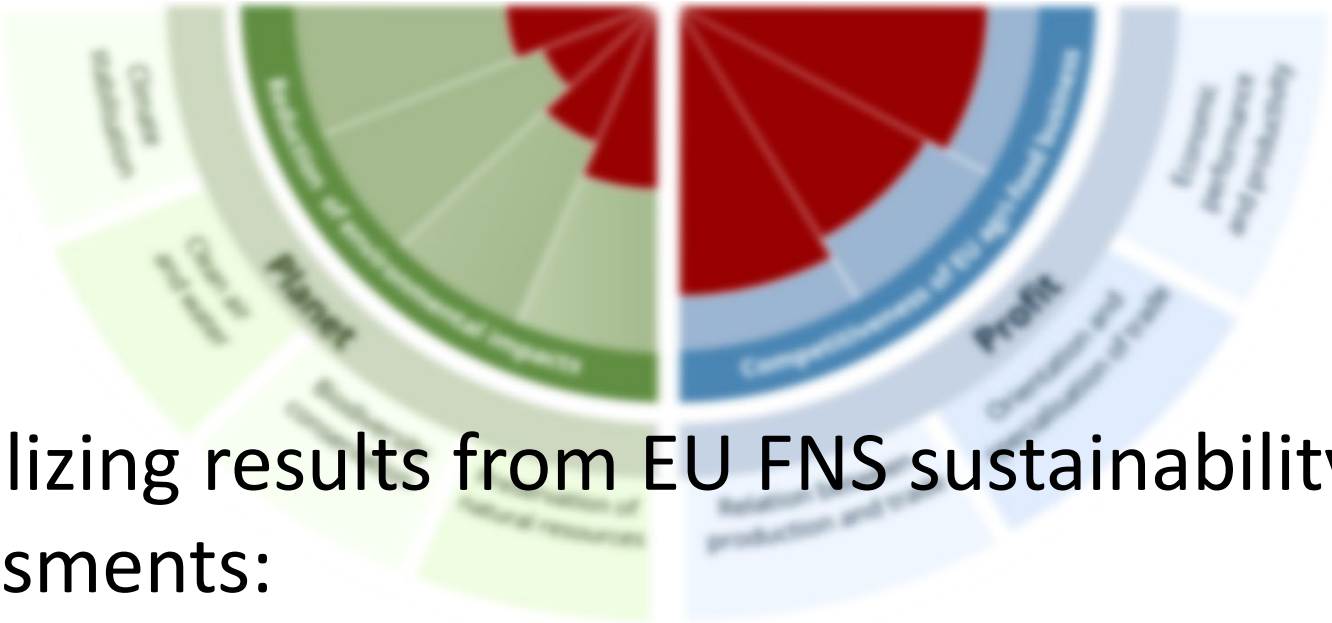
Assessing EU FNS sustainability



Visualizing results from EU FNS sustainability assessments:

- **Present**
- Potential futures
- Influenced by policies

WP4: Drivers and current state of the food system

Drivers of crop, livestock and seafood production, and emission leakages

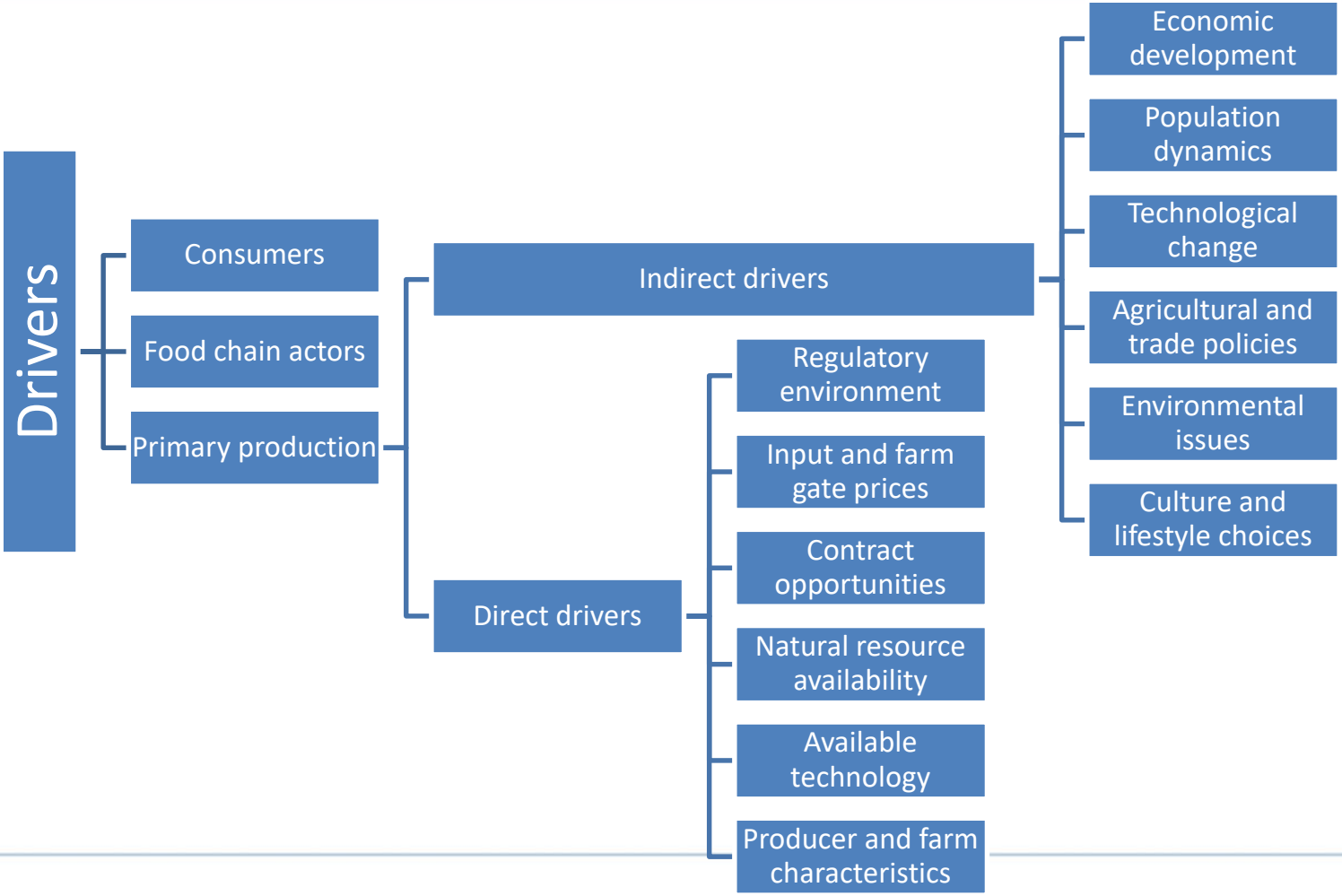
↓

EU food supply

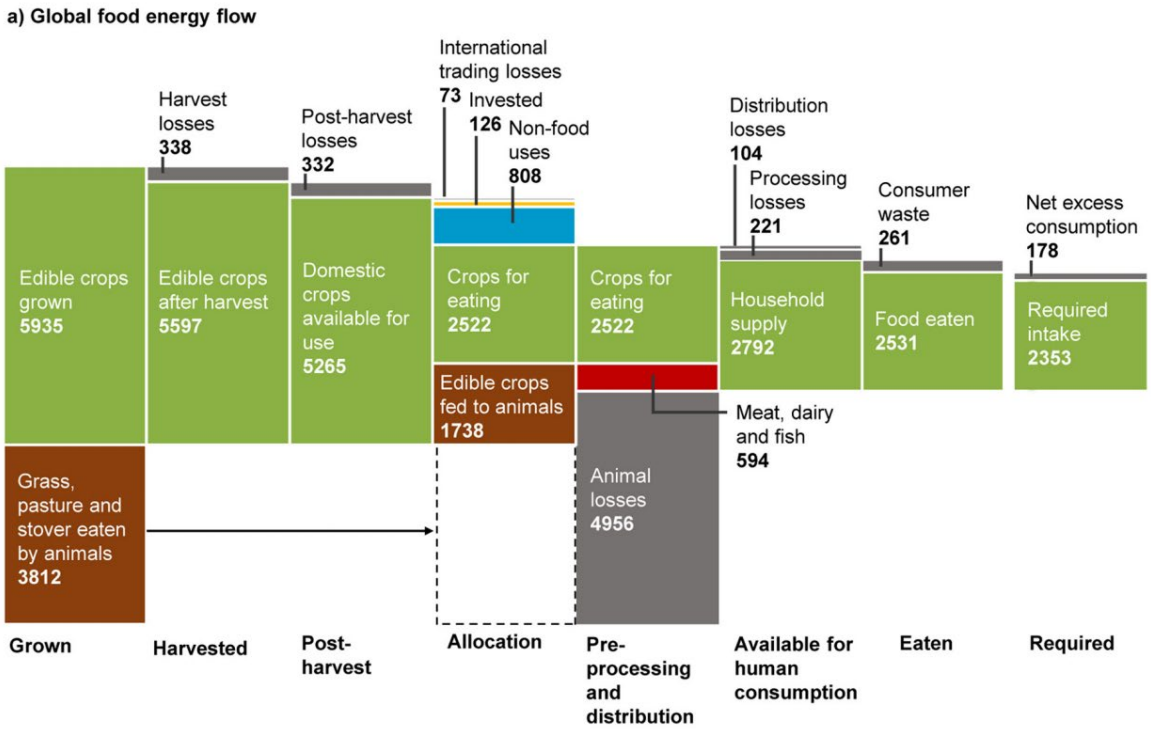
↓

Spatially disaggregated sustainability assessment

Food system drivers



We have ‘enough’ food supply, even for 2050



- Status 2013
- Would allow to feed the world in 2050
- Meat share and waste reduction
- Projection based on constant yield
- Requires substantial redistribution and trade to guarantee minimum calorie intake for all

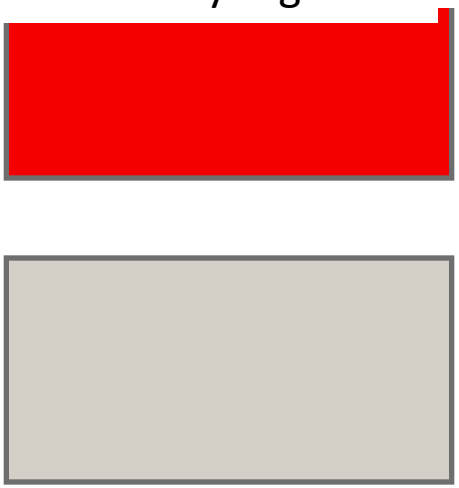
Berners-Lee, et al. 2018

Heterogeneity in wheat yield / variability development (1989-2011)

- Yield increase still dominant
- Generally, decelerating growth in EU-west, accelerating in EU-east
- Relative variability reduces widely

Efficiency with some (heterogeneous) room for improvement in the EU

Mean efficiencies in soft wheat production by region



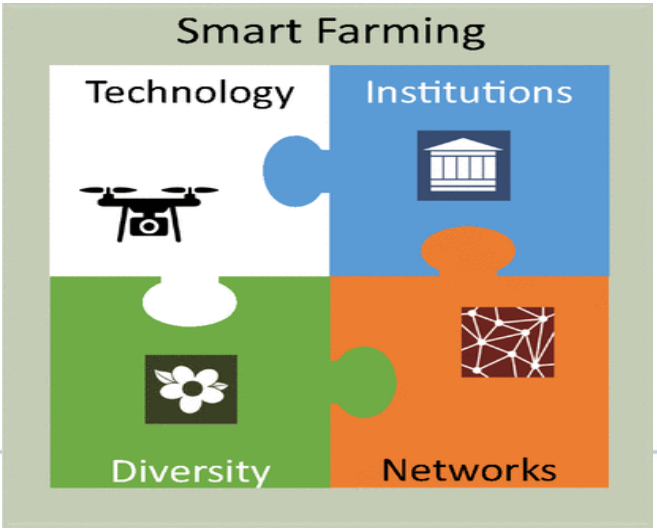
Mean efficiencies in soybean production by region

Technological developments might be radical in coming decades

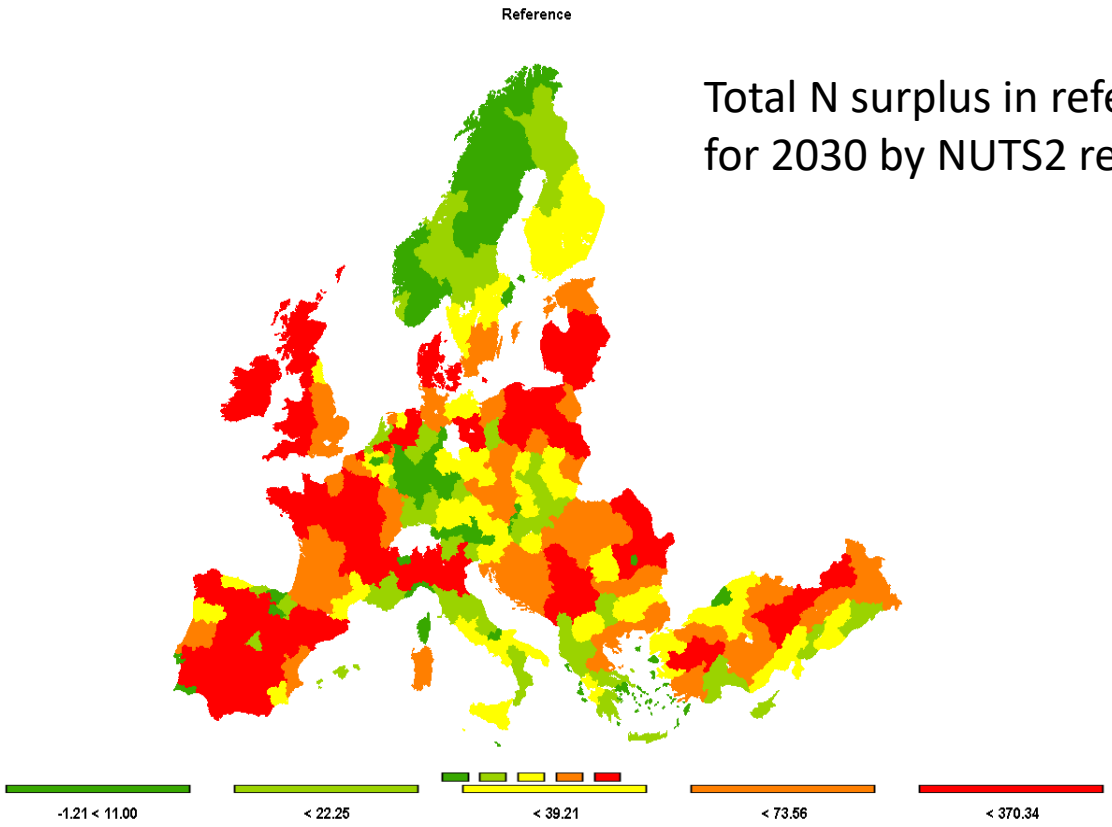
- Digitisation and automation
- Eco-Efficiency of production may be significantly improved

→ Environmental sustainability

Walter et al. 2017

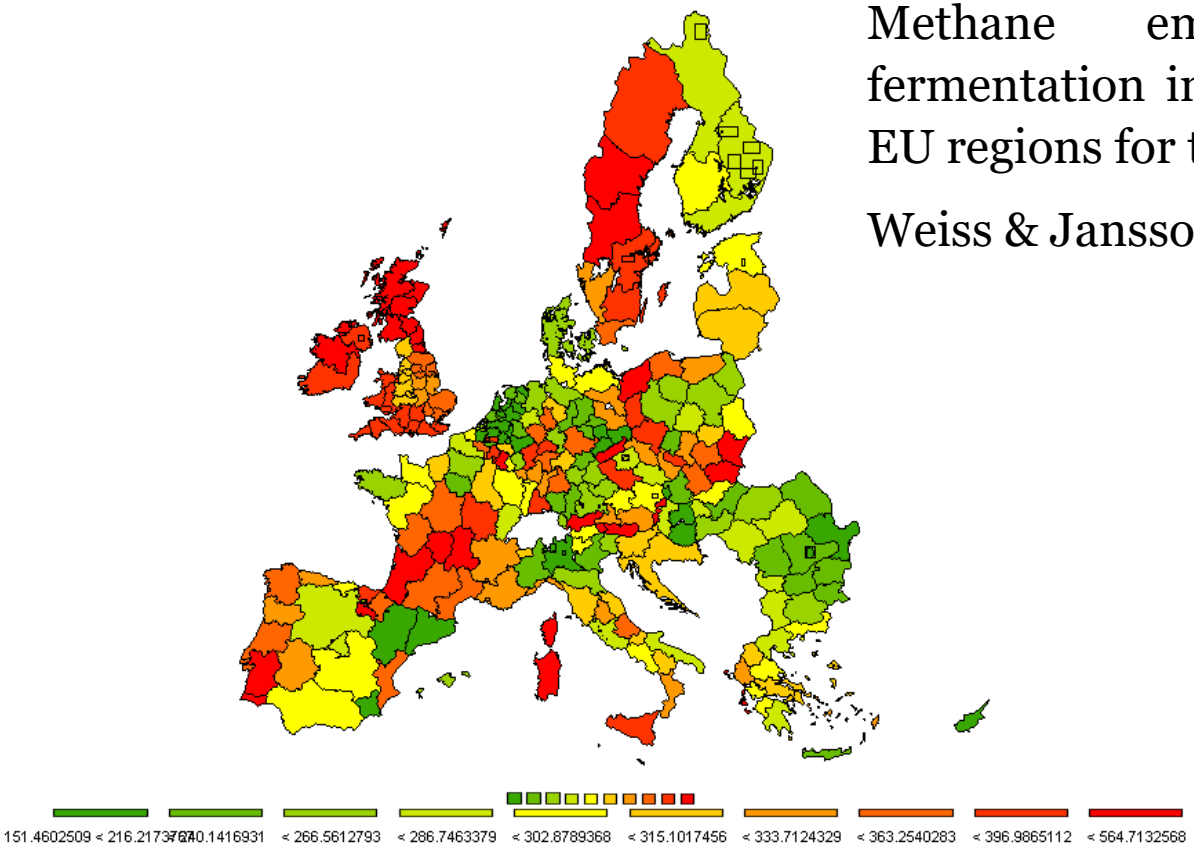


Nitrogen surplus significant but varies regionally



Total N surplus in reference (baseline) scenario for 2030 by NUTS2 region, Latka et al. 2018

Methane emissions from beef production



Methane emissions from enteric fermentation in kg CH4 per kg of beef in EU regions for the year 2025

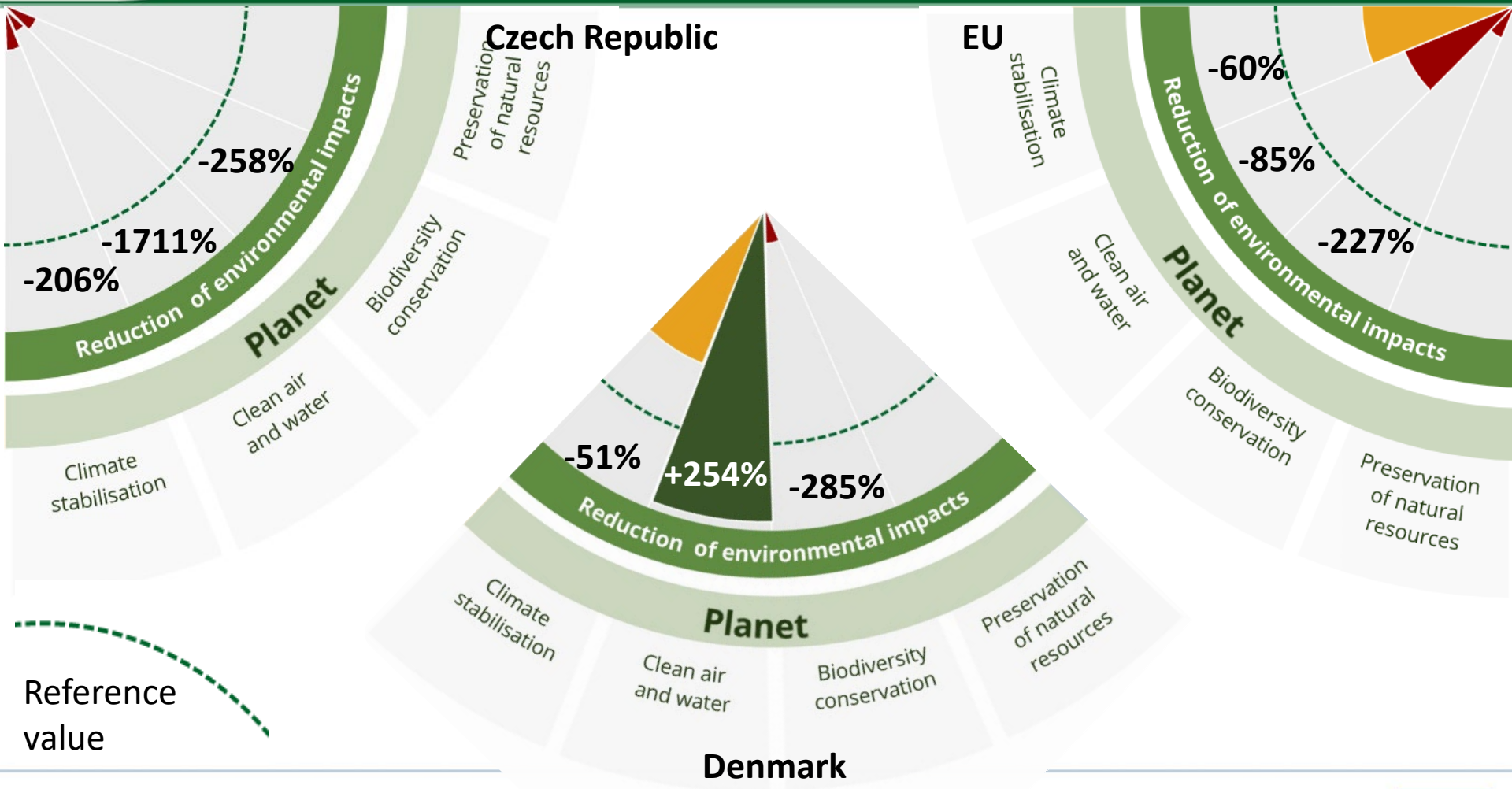
Weiss & Jansson, 2017

Drivers of nutrient imports

- Historical trade policies (low import tariffs for a long time)
- Income development within - but more importantly now - outside of EU

  → Share of meat in diets goes up

Other environmental indicators vary regionally as well and are off target



Regional heterogeneity requires targeted policies

- Pressing environmental problems differ in type and level by region
- Specific processes leading to problems also differ

→ Policies need to be targeted at the regional level

CAP & healthy diets?

	CMO	No CMO
Diet recommendation - To increase: • **Vegetables** • **Fruit** • **Legumes** • **Nuts and seeds** • **Fish** • **Milk**	Dairy	Vegetables Fruit Legumes Nuts and seeds Fish
Diet recommendation - To reduce: • **Red and processed meat** • **Sugar sweetened beverages** • **Cheese** • **Alcohol (ethanol)** • **Salt**	Beef Pork Poultry Dairy Sugar Grains	(Processed meat) (Salt) (Ethanol)

Story not so easy

- CMO → more and cheaper products?
- Not necessarily, see for example sugar
- The story for beef is also not so clear
  - Tariffs render beef prices higher
  - But full social cost of beef production far from being internalised (see nutrients)

  → Would make meat prices go up as long as trade leakage is taken care of

Change CAP-support?

- Reform steps in last two decades towards market orientation
- Now move away from a market oriented production to support ‚healthy' food items?

→Price effect either minimal or very expensive (low raw product share in final good/service)

→Consumer taxes/subsidies and education much more targeted

Food production & other health issues

- Crop protection
- Animal density (antibiotic resistance, zoonotic disease, dust particles)
  - Again connection to nutrient imports

CAP reform process

- First pillar changes likely moderate and with little relevance for sustainability
- Regional targeting is potentially strengthened
- Nutrient policies potentially significant (fertilizer directive)
- Measures along the value chain for fostering quality